

## **Attachment 10. AB1420 and Water Meter Implementation Compliance**

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This attachment includes documentation submittal of updated AB 1420 Self-Certification Statement Tables 1 and 2; one copy each with a wet signature is included in the hard copy submittal.

Also included is a verification letter from DWR, Folsom BMP Coverage Report for 2009-2010 and complete AB 1420 Final Submittal date November 2010.

# AB 1420 Self-Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Richard J. Colwell Title of Signatory Utility President Signature of signatory [Signature] Date 7/12/12

## Application Date:

Proposal Identification Number: LGA12 131097-012

CUWCC Member? Yes/No Yes

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No yes

Is the UWM Plan Deemed Complete by DWR? Yes/No yes

Applicant Name: City of Folsom

## Project Title:

Applicant's Contact Information:

Name: Don Smith

Phone: 916-351-3590

E-mail: dsmith@folsom.ca.us

Participants:

		Retailer (List Below)										Wholesaler (List Below)									

C1	C2	C3	C4	C5	C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / BMP			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier		Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer Yes/No	CUWCC MOU Requirement Met: Wholesaler Yes/No	Date of BMP Report Submitted to CUWCC for (2009-2010) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
			BMPs for Single/Multi-Family Residential Customers	Yes	N/A	No	No	No	yes	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A	Yes, See Attachments
		✓	BMP 2 Residential Plumbing Retrofit	Yes	N/A	No	No	No	yes	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A	Yes, See Attachments
✓		✓	BMP 3 System Water Audits, Leak Detection	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A	Yes, See Attachments
✓		✓	BMP 3 Leak Repairs	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A	Yes, See Attachments
		✓	BMP 4 Metering with Commodity Rates for All New connections	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A	Yes, See Attachments
		✓	BMP 4 Retrofit of Existing Connections	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A	Yes, See Attachments

BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs Implemented by Retailers and/or Wholesalers / BMP	Compliance Options/Alternative Conservation Approaches (1)			BMP is Exempt (2)			BMP Implementation Requirements Met								
			Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer Yes/No	CUWCC MOU Requirement Met: Wholesaler Yes/No	Date of BMP Report Submitted to CUWCC for (2009-2010) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No	
		BMPs															
	✓	BMP 5 Large Landscape Conservation Programs and Incentives	Yes	N/A	No	No	No	yes	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes See Attachments
	✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	Yes	N/A	Yes	No	No	Yes	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A		Yes, See Attachments
✓	✓	BMP 7 Public Information	Yes	N/A	Yes	Yes	No	No	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes, See Attachments
✓	✓	BMP 8 School Education	Yes	N/A	Yes	Yes	No	No	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes, See Attachments
		BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts	Yes	N/A	No	No	No	Yes	N/A	N/A	N/A	yes	N/A	8/5/2011	N/A		Yes, See Attachments
✓		BMP 10 Wholesale Agency Assistance Programs	NA	N/A	No	NA	No	NA	N/A	N/A	N/A	NA	N/A	8/5/2011	N/A		Yes, See Attachments
	✓	BMP 11 Conservation Pricing	NA	N/A	No	NA	No	No	N/A	N/A	N/A	NA	N/A	8/5/2011	N/A		Yes, See Attachments
✓		BMP 12 Conservation Coordinator	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes, See Attachments
	✓	BMP 13 Water Waste Prohibitions	Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes, See Attachments
		BMP 14 Residential ULFT Replacement Programs	Yes	N/A	No	No	No	Yes	N/A	N/A	N/A	Yes	N/A	8/5/2011	N/A		Yes, See Attachments

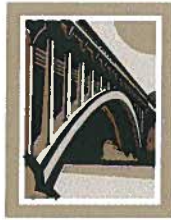
\*C6: Wholesaler may also be a retailer (supplying water to end water users)

\*\*C8, \*C9, \*\*, and C10: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: <http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx>.

(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU

(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.



CITY OF  
**FOLSOM**  
DISTINCTIVE BY NATURE

Richard J. Lorenz, PE, Director

PUBLIC WORKS AND UTILITIES DEPARTMENT  
50 NATOMA STREET  
FOLSOM, CALIFORNIA 95630  
916.355.7200 / 916.351.5603 FAX

July 13, 2012

To whom it may concern

Regarding AB 1420 Table 2-2012

The City of Folsom's most recent CUWCC BMP coverage report for the years of 2009-2010 certifies that the City is fully compliant in all but one BMP, BMP 1.4 Conservation Pricing.

The City is not yet required to implement this BMP. According to the CUWCC MOU, those agencies signing the MOU after December 1, 1997 with partially metered service areas, implementation shall commence no later than July 1, 2013. CUWCC MOU, amended June 9, 2010, Exhibit 1, section B, Implementation Schedule, Agencies with partially metered service areas.

The City's Meter Implementation Plan will not be completed until January 1, 2013 when all City water customers will be converted from a flat rate to a volumetric rate. At that time the City will assess what steps need to be taken to become compliant with BMP 1.4 and will meet the requirements of BMP 1.4 by July 1, 2013.

Should you have any questions I may be reached at 916-351-3590 or [dsmith@folsom.ca.us](mailto:dsmith@folsom.ca.us).

Sincerely,

Don Smith  
Water Management Coordinator  
City of Folsom



**Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds.**

Name of Signatory James Collier Title of Signatory City Manager Signature of Signatory [Signature] Date 7/12/12

**Proposal Identification Number:**

**City of Folsom**

City of Folsom

**Name** Don Smith, 916-351-3590, dsmith@folsom.ca.us

Retailer (List Below)

[illegible]

Implementation Scheduled to Commence within 1st Year of Agreement																	
				BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)	BMP Is Exempt (2)			Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
				Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No			Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track						
CUWCC 2010 Flex Track Wholesale Supplier BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs														
			BMP 14 Residential DLF / Replacement Programs														
3.40		✓															
4. Commercial, Industrial, Institutional																	
			BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts														
4.00		✓															
5. Landscape																	
			BMP 5 Large Landscape Conservation Programs and Initiatives														
5.00		✓															

\*C6: Wholesaler may also be a retailer (supplying water to end water users)  
 \*\*C9: \*\* C10: and \*\*C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.  
 (1) For details, please see <http://www.cuwcc.org/mou/scholt-1-bmp-definitions-schedules-requirements.aspx>.  
 (2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.



## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

Agency: **City of Folsom**  
Retail

District Name: **City of Folsom**

CUWCC Unit #: **6978**

Primary Contact **Don Smith**

Telephone **916-351-3590**

Email: **dsmith@folsom.ca.us**

Compliance Option Chosen By Reporting Agency:  
(Traditional, Flex Track or GPCD)

GPCD if used:

GPCD in 2010	<b>357</b>
GPCD Target for 2018	<b>330</b>

Year	Report	Target	Highest Acceptable Bound		
		% Base	GPCD	% Base	GPCD
2010	1	96.4%	388	100%	403
2012	2	92.8%	374	96%	388
2014	3	89.2%	359	93%	374
2016	4	85.6%	345	89%	359
2018	5	82.0%	330	82%	330

Not on Track if 2010 GPCD is > than target

GPCD in 2010 **357**

Highest

Acceptable GPCD **403**

for 2010

**On Track**

Agency: **City of Folsom**  
Retail

District Name: **City of Folsom**

CUWCC Unit #: **6978**



## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### Foundational BMPs

##### BMP 1.1 Operational Practices

		2009	2010	Conservation Coordinator provided with necessary resources to implement BMPs?
1. Conservation Coordinator provided with necessary resources to implement BMPs?	Name	Don Smith	Don Smith	
	Title	Water Management Coordinator	Water Management Coordinator	
	Email		dsmith@folsom.c	
		On Track	On Track	
2. Water waste prevention documentation				
Descriptive File		0		
	Descriptive File 2010		0	On Track if any one of the 6 ordinance actions done, plus documentation or links provided
URL		The City of Folsom has adopted and actively enforces Folsom		
URL 2010			http://nt5.scbbs.com/cgi-bin/om_isapi.dll?clientID=198198877&headingswi	
Describe Ordinance Terms		The City of Folsom has adopted and actively enforces Folsom		
Describe Ordinance Terms 2010			The City of Folsom has adopted and actively enforces Folsom Municipal Code 13.26, including prohibitions against the wasteful use of water. The	
		On Track	On Track	

Agency: **City of Folsom**  
Retail

District Name: **City of Folsom**

CUWCC Unit #: **6978**



## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### BMP 1.2 Water Loss Control

	2009	
Complete a prescreening Audit	yes	On Track
Metered Sales	9,603	
Verifiable Other Uses	10,707	
Total Supply	24,393	
(Metered Sales + System uses)/ Total Supply >0.89	0.83	
If ratio is less than 0.9, complete a full scale Audit in 2009?	Yes	On Track
Verify Data with Records on File?	Yes	On Track
Operate a system Leak Detection Program?	Yes	On Track

On Track if Yes

On Track if  $\geq 0.89$ , Not on Track if No

On Track if Yes

On Track if Yes

On Track if Yes

#### Comments:

*The large difference between total supply into the system compared to metered sales and verifiable uses is due to the fact that most residential customers within the City of Folsom were billed at a flat rate water use for the 2009 Calendar Year.*

	2010	
Compile Standard Water Audit using AWWA Software?	Yes	On Track
AWWA file provided to CUWCC?	Folsom 2010 AWWA WLCC Water Audit.xls	On Track
AWWA Water Audit Validity Score?	13.56	
Completed Training in AWWA Audit Method?	yes	
Completed Training in Component Analysis Process?	Yes	
Complete Component Analysis?	Yes	
Repaired all leaks and breaks to the extent cost effective?	Yes	On Track
Locate and repair unreported leaks to the extent cost effective.	Yes	On Track
Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.		
Provided 7 types of Water Loss Control Info		
Leaks Repaired	Value Real Losses	Value Apparent Losses
128	\$ 46	\$ 3
		Miles Surveyed
		N/A
		Press Reduction
		Off
		Cost of Interventions
		\$ -
		Water Saved
		1339

On Track if Yes, Not on Track if No

On Track if Yes, Not on Track if No

Info only until 2012

Info only until 2012

Info only until 2012

On Track if Yes, Not on Track if No

On Track if Yes, Not on Track if No

Info only until 2012

Info only until 2012

Agency: **City of Folsom**  
Retail

District Name: **City of Folsom**

CUWCC Unit #: **6978**



## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### 1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

Exemption or 'At least as Effective As' accepted by CUWCC

Numbered Unmetered Accounts

Metered Accounts billed by volume of use

Number of CII accounts with Mixed Use meters

Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?

Feasibility Study provided to CUWCC?

Completed a written plan, policy or program to test, repair and replace meters

2009
Yes
No
204
No
Yes
Yes

2010
No
Yes
204
No
No
Yes

On Track

On Track

On Track

On Track

If signed MOU prior to 31 Dec 1997, On Track if all connections metered; If signed after 31 Dec 1997, complete meter installations by 1 July 2012 or within 6 yrs of signing and 20% biannual reduction of unmetered connections.

On Track if no unmetered accounts

Volumetric billing required for all connections on same schedule as metering

Info only

Info only until 2012

On Track if Yes, Not on Track if No

On Track if Yes, Not on Track if No



# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

Agency: **City of Folsom** District Name: **City of Folsom** CUWCC Unit #: **6978**  
 Retail Coverage Report Date: **June 9, 2011**  
 Primary Contact: **Don Smith** Email: **dsmith@folsom.ca.us**

### 1.4 Retail Conservation Pricing

#### Metered Water Rate Structure

Date 2009 data received **August 8, 2011**

Date 2010 data received **August 8, 2011**

On Track if: Increasing Block, Uniform, Allocation, Standby Service; Not on Track if otherwise

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Uniform	Yes	Single-Family	Non-Volumetric Flat Rate	0
Multi-Family	Uniform	Yes	Multi-Family	Uniform	Yes
Commercial	Uniform	Yes	Commercial	Uniform	Yes
Industrial	Uniform	Yes	Industrial	Uniform	Yes
Institutional	Uniform	Yes	Institutional	Uniform	Yes
<b>On Track</b>			<b>On Track</b>		

Year Volumetric Rates began for Agencies with some Unmetered Accounts

Info only

Agencies with Partially Metered Service Areas: If signed MOU prior to 31 Dec. 1997, implementation starts no later than 1 July 2010. If signed MOU after 31 Dec. 1997, implementation starts no later than 1 July 2013, or within seven years of signing the MOU,

Agency: **City of Folsom**  
Retail

District Name: **City of Folsom**

CUWCC Unit #: **6978**

Coverage Report Date: **June 9, 2011**



## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### Adequacy of Volumetric Rates) for Agencies with No Unmetered Accounts

Customer Class	2009 Rate Type	2009 Volumetric Revenues \$1000s	2010 Rate Type	2010 Volumetric Revenues \$1000s
Single-Family	Uniform	\$ 582	Single-Family	\$ 456
Multi-Family	Uniform	\$ 673	Multi-Family	\$ 822
Commercial	Uniform	\$ 1,704	Commercial	\$ 1,789
Industrial	Uniform	\$ 313	Industrial	\$ 376
Institutional	Uniform	\$ 197	Institutional	\$ 204
Dedicated Irrigation		\$ 956		\$ 1,389
Fire Lines		\$ -		\$ -
Total Revenue Commodity Charges (V):		\$ 4,426	\$ 5,037	
Total Revenue Fixed Charges (M):		\$ 7,517	\$ 7,550	
Calculate: V / (V + M):		37%	40%	
		Info Only until 2011	Info Only until 2011	

Agency Choices for rates:

A) Agencies signing MOU prior to 13 June2007, implementation starts 1 July2007: On Track if  $(V / (V + M) \geq 70\% \times .8 = 56\% \text{ for } 2009 \text{ and } 70\% \times 0.90 = 63\% \text{ for } 2010;$  Not on track if  $(V / (V + M) < 70\%;$

B) Use Canadian model. Agencies signing MOU after 13June2007, implementation starts July 1 of year following signing.

Canadian Water & Wastewater Rate Design Model Used and Provided to CUWCC  
If Canadian Model is used, was 1 year or 3 year period applied?

**No**  
Info Only until 2011

**No**  
Info Only until 2011

#### Wastewater Rates

Does Agency Provide Sewer Service?

**2009** If 'No', then wastewater rate info not required.  
**Yes**

**2010**  
**Yes**

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Non-Volumetric Flat Rate	No	Single-Family	Non-Volumetric Flat Rate	No
Multi-Family	Non-Volumetric Flat Rate	No	Multi-Family	Non-Volumetric Flat Rate	No
Commercial	Non-Volumetric Flat Rate	No	Commercial	Non-Volumetric Flat Rate	No
Industrial	Non-Volumetric Flat Rate	No	Industrial	Non-Volumetric Flat Rate	No
			Institutional	Non-Volumetric Flat Rate	No
<b>Not on Track</b>			<b>Not on Track</b>		

#### Comments:

Sewer charges are based on the listed flat rate multiplied by a conversion of square feet and other criteria

On Track if: 'Increasing Block', 'Uniform', 'based on long term marginal cost' or 'next unit of capacity'





## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### BMP 2. EDUCATION PROGRAMS

##### BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC

Does a wholesale agency implement Public Outreach Programs for this utility's benefit?  
Names of Wholesale Agencies

1) Contacts with the public (minimum = 4 times per year)

2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly).

3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly).

4) Description of materials used to meet minimum requirement.

5) Annual budget for public outreach program.

6) Description of all other outreach programs

2009	2010
65	69
14	9
Yes	Yes
Newsletter articles on conservation Flyers and/or brochures (total copies), bill stuffers General water conservation information	Newsletter articles on conservation Flyers and/or brochures (total copies), bill stuffers General water conservation information
Articles or stories resulting from outreach Newspaper contacts News releases Radio contacts	Articles or stories resulting from outreach News releases Radio contacts
\$ 8,420	\$ 164,308
Description is too large for text area. Data will be stored in the BMP Reporting database when online.	Description is too large for text area. Data will be stored in the BMP Reporting database when online.
On Track	On Track

Yes/No

All 6 action types implemented and reported to CUWCC to be 'On Track'



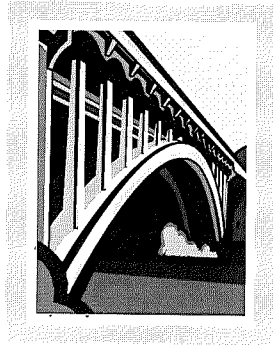
## CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

### Foundation Best Management Practices for Urban Water Efficiency

#### 2.2 School Education Programs Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement School Education Programs for this utility's benefit? Name of Wholesale Supplier?	Yes	Yes	
	Regional Water Authority	Regional Water Authority	
1) Curriculum materials developed and/or provided by agency	<ul style="list-style-type: none"> <li>• Student supplements, written by an award-winning environmental educator and edited by water agency personnel.</li> <li>• Teaching materials, online Be Water Smart teacher guides and activities</li> <li>• California Waterways map</li> <li>• Student contests for K-4th grades and 5th-8th grades</li> <li>• Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program</li> </ul>	<ul style="list-style-type: none"> <li>• Student supplements, written by an award-winning environmental educator and edited by water agency personnel.</li> <li>• Teaching materials, online Be Water Smart teacher guides and activities</li> <li>• California Waterways map</li> <li>• Student contests for K-4th grades and 5th-8th grades</li> <li>• Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program</li> </ul>	Yes/ No
2) Materials meet state education framework requirements and are grade-level appropriate?	Yes	Yes	All 5 actions types implemented and reported to CUWCC to be
3) Materials Distributed to K-6?	Yes	Yes	
Describe K-6 Materials	<ul style="list-style-type: none"> <li>• Student supplements, written by an award-winning environmental educator and edited by water agency personnel.</li> <li>• Teaching materials, online Be Water Smart teacher guides and activities</li> <li>• California Waterways map</li> <li>• K-4 will receive a class set of "Water Conservation and You booklets"</li> <li>• Student contests for K-4th grades and 5th-8th grades</li> <li>• Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program</li> </ul>	<ul style="list-style-type: none"> <li>• Student supplements, written by an award-winning environmental educator and edited by water agency personnel.</li> <li>• Teaching materials, online Be Water Smart teacher guides and activities</li> <li>• California Waterways map</li> <li>• K-4 will receive a class set of "Water Conservation and You booklets"</li> <li>• Student contests for K-4th grades and 5th-8th grades</li> <li>• Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program</li> </ul>	Describe materials to meet minimum requirements
Materials distributed to 7-12 students?	No	No	Info Only
4) Annual budget for school education program.	\$ 21,500	\$ 21,500	
5) Description of all other water supplier education programs	Description is too large	Description is too large	
	See Wholesale Report	See Wholesale Report	
	0	0	





CITY OF  
**FOLSOM**  
DISTINCTIVE BY NATURE

## **DWR Compliance Letter**

**DEPARTMENT OF WATER RESOURCES**

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791



December 14, 2010

Mr. Todd Eising  
Senior Civil Engineer  
City of Folsom  
50 Natoma Street  
Folsom, California 95630

Dear Mr. Eising:

The Department of Water Resources (DWR) has reviewed the City of Folsom's Self-Certification Statement – Tables 1 and 2 submitted on November 10, 2010, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of the City of Folsom to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit <http://www.water.ca.gov/wateruseefficiency/finance/>.

Based on DWR's review of the information in Tables 1 and 2, the City of Folsom has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

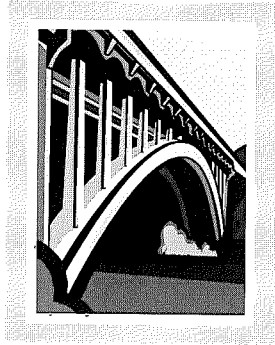
DWR reserves the right to request additional information and documentation, including reports from the City of Folsom to substantiate the accuracy of the information provided in Tables 1 and 2. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Tables 1 and 2.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

A handwritten signature in black ink, appearing to read "Fethi BenJemaa".

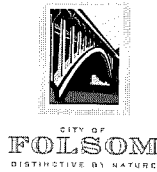
Fethi BenJemaa  
Ag Water Use Efficiency Section Chief



CITY OF  
**FOLSOM**  
DISTINCTIVE BY NATURE

**City of Folsom**

**AB 1420 Submittal Package**



November 10, 2010

Mr. Baryohay Davidoff  
Department of Water Resources  
Office of Water Use Efficiency & Transfer  
901 P Street, Third Floor  
Sacramento, CA 95814

Regarding AB 1420

Dear Mr. Davidoff:

The City of Folsom is pleased to submit Table 1 & 2 along with supporting reports and documentation for DWR's determination of the City of Folsom's compliance with AB 1420.

The City of Folsom is fully supportive of the CUWCC BMPs and has taken measures to become fully compliant. As indicated in the 2008 CUWCC BMP Report there are 4 BMPs that listed the City as off-track. The City is already compliant with BMP 4 and, as noted below, is making significant progress towards the goals of BMP 3, 6, and 9. Please see the attached documentation for details.

- BMP 3 System Audits and Leak Detection
  - Compliance with BMP 3 will be accomplished through the City's Water Loss Control Program beginning in November of 2010.
- BMP 4 Metering and Commodity Rates
  - In 2009 the City satisfied the goals of BMP 4 through our Water Meter Implementation Plan.
- BMP 6 High-Efficiency Washing Machine Rebates & BMP 9 Conservation Programs for CII Accounts
  - Compliance with BMP 6 & 9 will be achieved through the Council's GPCD BMP reporting option.

The City of Folsom has consistently demonstrated support and implementation of effective Water Use Efficiency practices and will continue these practices well into the future. The City of Folsom is looking forward to your review of this submittal package and is available to assist with any questions if necessary. Please call Don Smith, Water Management Coordinator, at 916-351-3590 or email to [dsmith@folsom.ca.us](mailto:dsmith@folsom.ca.us) for assistance.

Sincerely,

Don Smith  
Water Management Coordinator

**Water Management Program**

50 Natoma Street  
Folsom, California, 95630  
916.355.7252 | 916.351.3413 Fax

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# TAB 1

# AB 1420 Self-Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP Implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self-Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory: JOJO EISING Title of Signatory: SENIOR ENG Signature of signatory: [Signature] Date: 11/10/10

Application Date: [None] CUMCC Member? Yes/No Yes

Proposal Identification Number: [None] Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No Yes Is the UWM Plan Deemed Complete by DWR? Yes/No Yes

Applicant Name: City of Folsom

Project Title: City of Folsom

Applicant's Contact Information: Name: Don Smith Phone: 916-351-3590 E-mail: dsmith@sfom.ca.us

Participant: Retailer (List Below) Wholesaler (List Below)

	C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
					BMP Implemented by Retailers and/or Wholesalers / BMP			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
					Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUMCC MOU Requirement Met: Retailer Yes/No	CUMCC MOU Requirement Met: Wholesaler Yes/No	Date of BMP Report Submitted to CUMCC for (2007-2009) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUMCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs for Single-Multi-Family Residential Customers	BMP 1 Water Survey	Yes	Yes	No	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2009	N/A	Yes, See Attachments
✓	✓	✓	BMP 2 Residential Plumbing Retrofit, Audit, Leak Detection	Yes	N/A	No	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2009	N/A	Yes, See Attachments
✓	✓	✓	BMP 3 System Water Audit, Leak Detection	Yes	N/A	No	No	Yes	No	No	N/A	N/A	N/A	No	N/A	7/13/2009	N/A	Yes, See Attachments
✓	✓	✓	BMP 3 Leak Repairs	Yes	N/A	No	No	Yes	No	No	N/A	N/A	N/A	No	N/A	7/13/2009	N/A	Yes, See Attachments
✓	✓	✓	BMP 4 Metering with All New Connections	Yes	N/A	No	No	Yes	No	No	N/A	N/A	N/A	No	N/A	7/13/2009	N/A	Yes, See Attachments
✓	✓	✓	BMP 4 Retrofit of Existing Connections	Yes	N/A	No	No	Yes	No	No	N/A	N/A	N/A	No	N/A	7/13/2009	N/A	Yes, See Attachments

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	BMPs	BMP Implemented by Retailers and/or Wholesalers / BMP			Options/Alternative Conservation Approaches (1)			BMP is Exempt (2)			BMP Implementation Requirements Met				All Supporting Documents have been Submitted Yes/No
				Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Yes/No	CUWCC MOU Requirement Met: Yes/No	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatures)	Date BMP Implementation Data Submitted to DWFR in CUWCC Format (Non MOU Signatures) (3)	
		BMP 6 Large Landscape Conservation Programs and Incentives		Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 6 High-Efficiency Washing Machine Rebate Programs		Yes	N/A	Yes	N/A	No	Yes	N/A	N/A	N/A	No	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 7 Public Information		Yes	N/A	Yes	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 8 School Education		Yes	N/A	Yes	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts		Yes	N/A	No	N/A	No	Yes	N/A	N/A	N/A	No	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 10 Wholesale Agency Assistance Programs		NA	N/A	No	NA	No	No	N/A	N/A	N/A	NA	N/A	NA	N/A	Yes, See Attachments
		BMP 11 Conservation Pricing		NA	N/A	No	NA	No	No	N/A	N/A	N/A	NA	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 12 Conservation Coordinator		Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 13 Water Waste Prohibitions		Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments
		BMP 14 Residential ULFT Replacement Programs		Yes	N/A	No	Yes	No	No	N/A	N/A	N/A	Yes	N/A	7/13/2008	N/A	Yes, See Attachments

\*C6: Wholesaler may also be a retailer (supplying water to end water users)

\*\*C8, \*\*C9, \*\*, and C10: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: <http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx>.

(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU

(3) Non MOU signatories must submit to DWFR reports and supporting documents in the same format as CUWCC.

**Self-Certification Statement:** The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BWMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1 and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2, and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the Funding Agency. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

1

1. *Journal of the American Medical Association*, 2000; 283: 2689-2693.

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CLWCC Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	BMP Implemented by Retailers and/or Wholesalers		Alternative Conservation Approaches Yes/No	Compliance Options / Alternative Conservation Approaches (1)		BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement							Funds Requested, if Available: (See AB 1420 Compliance Table 3) Yes/No		
				Retailer Yes/No	Wholesaler Yes/No		Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day (GPCD)	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs		Meets CLWCC Coverage Yes/No	
1. Utility Operations Program: BMP 10 Conservation																					
1.11	✓	✓	Coordinator																		
1.12		✓	BMP 13 Water Waste Prohibitions																		
1.13	✓	✓	BMP 10 Wastewater Agency Assessment Program																		
1.20	✓	✓	BMP 3 System Water Audits, Leak Detection/Repair	yes	N/A		yes								Nov-10	5%	Dec-12	attached	attached	Yes	No
			BMP 4 Metering with Commodity Rates for All New/Retrofit of Existing connections																		No
1.30		✓																			
1.40		✓	BMP 11 Conservation Picking	yes	N/A			Yes							Jan-05	100%	Dec-09	attached	attached	Yes	No
2. Educational Programs																					
2.10	✓	✓	BMP 7 Public Information																		
2.20	✓	✓	BMP 8 School Education																		
3. Residential																					
			BMP 1 Indoor Water Survey for Single/Multi-Family Residential Customers																		
3.11		✓	BMP 1 Outdoor Water Survey for Single/Multi-Family Residential Customers																		
3.12			BMP 2 Residential Plumbing Retrofit																		
3.20		✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	yes	N/A		Yes		Yes						January-09	0%	Dec-18	attached	attached	yes	No
3.30		✓																			

		BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)			BMP is Exempt (2)		Implementation Scheduled to Commence within 1st Year of Agreement										Funds Requested, if Available - (See AB 1420 Compliance Table 3) Yes/No
		Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No				
3.40	✓	BMP 14 Residential UFT Replacement Programs																			
4. Commercial, Industrial, Institutional BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CI) Accounts																					
4.00	✓	yes	N/A		Yes			Yes	N/A	N/A		January-09	0%	Dec-18 attached		attached	yes	No			
5. Landscapes																					
5.00	✓	BMP 6 Large Landscape Conservation Programs and Incentives																			

\*CR: Wholesaler may also be a retailer (supplying water to end water users)  
 \*\*C9, \*\* C10, and \*\*C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.  
 (1) For details, please see <http://www.cuwcc.org/node/1011>-bmp-definitions-schedules-requirements.aspx.  
 (2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUVWCC MOU.

## **TAB 2**

# **COVERAGE REPORT**

**2007 - 2008**

Reported as of 7/13/09

## BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:  
City of Folsom

Reporting Period:  
07-08

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

### Test for Condition 1

City of Folsom to Implement Targeting/Marketing Program by:	2006		
		<u>Single-Family</u>	<u>Multi-Family</u>
Year City of Folsom Reported Implementing Targeting/Marketing Program:	2001		2001
City of Folsom Met Targeting/Marketing Coverage Requirement:	YES		YES

### Test for Condition 2

			<u>Single-Family</u>	<u>Multi-Family</u>
Survey Program to Start by:	2005	Residential Survey Offers (%)	205.85%	22.86%
Reporting Period:	07-08	Survey Offers $\geq$ 20%	YES	YES

### Test for Condition 3

	Completed Residential Surveys	
	<u>Single Family</u>	<u>Multi-Family</u>
Total Completed Surveys 1999 - 2008:	1,488	1,320
Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):		
Total + Credit	1,488	1,320
Residential Accounts in Base Year	17,244	4,664
City of Folsom Survey Coverage as % of Base Year Residential Accounts	8.63%	28.30%



Coverage Requirement by Year 3 of Implementation per Exhibit 1	2.50%	2.50%
City of Folsom on Schedule to Meet 10-Year Coverage Requirement	ON TRACK	YES

---

**BMP 1 COVERAGE STATUS SUMMARY:**  
Water supplier is on track to meet the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 02 Coverage: Residential Plumbing Retrofit**

Reporting Unit:

Reporting Period:

**City of Folsom****07-08****MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

**Test for Condition 1**

<u>Report Year</u>	<u>Report Period</u>	<u>Single-Family</u>		<u>Multi-Family</u>	
		<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>	<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				
2005	05-06		NO		NO
2006	05-06		NO		NO
2007	07-08		NO		NO
2008	07-08		NO		NO

**Test for Condition 2**

<u>Report Year</u>	<u>Report Period</u>	<u>City of Folsom has ordinance requiring showerhead retrofit?</u>
1999	99-00	
2000	99-00	
2001	01-02	
2002	01-02	
2003	03-04	
2004	03-04	
2005	05-06	NO
2006	05-06	NO
2007	07-08	NO
2008	07-08	NO

**Test for Condition 3**

Reporting Period: 07-08

<u>1992 SF Accounts</u>	<u>Num. Showerheads Distributed to SF Accounts</u>	<u>Single-Family Coverage Ratio</u>	<u>SF Coverage Ratio &gt; 10%</u>
5,730	3,625	63.3%	YES
<u>1992 MF Accounts</u>	<u>Num. Showerheads Distributed to MF Accounts</u>	<u>Multi-Family Coverage Ratio</u>	<u>MF Coverage Ratio &gt; 10%</u>
2,847	692	24.3%	YES

**BMP 2 COVERAGE STATUS SUMMARY:****Water supplier is on track to meet the coverage requirements for this BMP.**

Reported as of 7/13/09

## BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:

City of Folsom

Reporting Period:

07-08

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency Indicated "at least as effective as" implementation during report period?

No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

### Test for Conditions 1 and 2

<u>Report Year</u>	<u>Report Period</u>	<u>Pre-Screen Completed</u>	<u>Pre-Screen Result</u>	<u>Full Audit Indicated</u>	<u>Full Audit Completed</u>
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				
2005	05-06	YES	83.4%	Yes	NO
2006	05-06	YES	81.0%	Yes	NO
2007	07-08	NO	75.5%	Yes	NO
2008	07-08	NO	89.6%	Yes	NO

### BMP 3 COVERAGE STATUS SUMMARY:

Water supplier is not currently on track to meet the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing**Reporting Unit:  
**City of Folsom**Reporting Period:  
**07-08****MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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For agencies signing the MOU prior to December 31, 1997:  
100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2009.

For agencies signing the MOU after December 31, 1997:  
- 100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2012 **OR** within six years of signing the MOU (whichever date is later).  
- All retrofits must be completed no later than one year prior to the requirements of state law (January 1, 2025).

---

**Test for Compliance**

---

Total Meter Retrofits Reported through 2008	1,999
No. of Unmetered Accounts in Base Year	5,730
Meter Retrofit Coverage as % of Base Year Unmetered Accounts	34.9%
Coverage Requirement by Year 3 of Implementation per Exhibit 1	50.0%
RU on Schedule to meet 10 Year Coverage Requirement	NO

---

**BMP 4 COVERAGE STATUS SUMMARY:**

**Water supplier is not currently on track to meet the coverage requirements for this BMP.**

Reported as of 7/13/09

## BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:  
City of Folsom

Reporting Period:  
07-08

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

Year	Report Period	BMP 5 Implementation Year	No. of Irrigation Meter Accounts	No. of Irrigation Accounts with Budgets	Budget Coverage Ratio	90% Coverage Met by Year 4
1999	99-00					NA
2000	99-00					NA
2001	01-02					NA
2002	01-02					NA
2003	03-04					NA
2004	03-04					NA
2005	05-06					NA
2006	05-06					NA
2007	07-08	1	254			NA
2008	07-08	2	186			NA

### Test for Condition 2a (survey offers)

Select Reporting Period:	07-08
Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts	213.7%
Survey Offers Equal or Exceed 20% Coverage Requirement	YES

### Test for Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through 07-08	77
Credit for Surveys Completed Prior to Implementation of Reporting Database	
Total + Credit	77
CII Accounts in Base Year	913
RU Survey Coverage as a % of Base Year CII Accounts	8.4%

Coverage Requirement by Year of Implementation per  
Exhibit 1

1.5%

RU on Schedule to Meet 10 Year Coverage  
Requirement

ON TRACK

### Test for Condition 2b (mixed use budget or meter retrofit program)

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>Agency has mix-use budget program</u>	<u>No. of mixed-use budgets</u>
1999	99-00			
2000	99-00			
2001	01-02			
2002	01-02			
2003	03-04			
2004	03-04			
2005	05-06		NO	
2006	05-06		NO	
2007	07-08	1	NO	
2008	07-08	2	NO	
<u>Report Year</u>	<u>Report Period</u>	<u>BMP 4 Implementation Year</u>	<u>No. of mixed use CII accounts</u>	<u>No. of mixed use CII accounts fitted with irrig. meters</u>
1999	99-00			
2000	99-00			
2001	01-02			
2002	01-02			
2003	03-04			
2004	03-04			
2005	05-06		913	
2006	05-06		913	
2007	07-08	2	962	
2008	07-08	3	871	186

### Test for Condition 3

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>RU offers financial incentives?</u>	<u>No. of Loans</u>	<u>Total Amt. Loans</u>
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				
2005	05-06		YES		
2006	05-06		YES		
2007	07-08	1	YES		
2008	07-08	2	YES		
<u>Report Year</u>	<u>Report Period</u>	<u>No. of Grants</u>	<u>Total Amt. Grants</u>	<u>No. of rebates</u>	<u>Total Amt. Rebates</u>
1999	99-00				
2000	99-00				
2001	01-02				

2002	01-02		
2003	03-04		
2004	03-04		
2005	05-06	3	13,583
2006	05-06		
2007	07-08	2	14,602
2008	07-08	2	15,777

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**BMP 5 COVERAGE STATUS SUMMARY:**

Water supplier is on track to meet the coverage requirements for this BMP.



Reported as of 7/13/09

**BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs**Reporting Unit:  
City of FolsomReporting  
Period:  
07-08**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet two conditions to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive to customers for the purchase of high-efficiency washers with water factors of 9.5 or less.

Condition 2: Meet Coverage Goal ( $CG = \text{Total Dwelling Units} \times 0.0768$ ) by July 1, 2008. Agencies signing the MOU after July 1, 2003, shall have a prorated Coverage Goal, based on implementation period of less than 4.0 years.

**Test for Condition 1**

Agency offers rebates for residential high-efficiency washers with water factors of 9.5 or less:

YES

**Test for Condition 2**

Coverage Goal:

1,158

Total Coverage Points  
Awarded  
(incl. past credit):

1,098

% of Coverage Goal:

94.81%

**BMP 6 COVERAGE STATUS SUMMARY:**

Water supplier is not currently on track to meet the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 07 Coverage: Public Information Programs**Reporting Unit:  
City of FolsomReporting Period:  
07-08**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

**Test for Condition 1**

<u>Year</u>	<u>Report Period</u>	<u>BMP 7 Implementation Year</u>	<u>RU Has Public Information Program?</u>
1999	99-00		
2000	99-00		
2001	01-02		
2002	01-02		
2003	03-04		
2004	03-04		
2005	05-06		YES
2006	05-06	1	YES
2007	07-08	2	YES
2008	07-08	3	YES

**BMP 7 COVERAGE STATUS SUMMARY:**

Water supplier has met the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 08 Coverage: School Education Programs**

Reporting Unit:

Reporting Period:

City of Folsom

07-08

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

**Test for Condition 1**

<u>Year</u>	<u>Report Period</u>	<u>BMP 8 Implementation Year</u>	<u>RU Has School Education Program?</u>
1999	99-00		
2000	99-00		
2001	01-02		
2002	01-02		
2003	03-04		
2004	03-04		
2005	05-06		YES
2006	05-06	1	YES
2007	07-08	2	YES
2008	07-08	3	YES

**BMP 8 COVERAGE STATUS SUMMARY:**

Water supplier has met the coverage requirements for this BMP.

Reported as of 7/13/09

## BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:  
City of Folsom

Reporting Period:  
07-08

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

#### Test for Condition 1

Ranked Commercial Use	NO
Ranked Industrial Use	NO
Ranked Institutional Use	NO

#### Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2008	89	0	10
Credit for Surveys Completed Prior to Implementation of Reporting Databases			
Total + Credit	89		10
CII Accounts in Base Year	870	25	50
RU Survey Coverage as % of Base Year CII Accounts	10.2%		20.0%
Coverage Requirement by Year 2 of Implementation per Exhibit 1	1.0%	1.0%	1.0%
RU on Schedule to Meet 10 Year Coverage Requirement	YES	NO	YES

#### Test for Condition 2b

Year	Performance Target Savings (AF/yr)	Performance Target Savings Coverage	Performance Target Savings Coverage Requirement	Coverage Requirement Met
2006			0.5%	NO
2007	0	0.0%	1.0%	NO
2008	0	0.0%	1.7%	NO
2009			2.4%	NO
2010			3.3%	NO

2011	4.2%	NO
2012	5.3%	NO
2013	6.4%	NO
2014	7.7%	NO
2015	9.0%	NO

---

**Test for Condition 2c**

---

Total BMP 9 Surveys + Credit	99
BMP 9 Survey Coverage	10.5%
BMP 9 Performance Target Coverage	0.0%
BMP 9 Survey + Performance Target Coverage	10.5%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

---

**BMP 9 COVERAGE STATUS SUMMARY:**

Water supplier is not currently on track to meet the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 11 Coverage: Conservation Pricing**

Reporting Unit:

Reporting Period:

City of Folsom

07-08

**MOU Exhibit 1 Coverage Requirement**

Agency indicated "at least as effective as"  
implementation during report period?

No

Per June 13, 2007 revision, an agency must meet one condition to comply with BMP 11.

Condition 1: Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. If agency provides retail sewer service, agency shall maintain rate structure for sewer service consistent with definition of conservation pricing for sewer service in Part II, Section in A.

Water Service

- Agencies signing the MOU prior to June 13, 2007, implementation shall commence no later than July 1, 2007.
- Agencies signing the MOU after June 13, 2007, implementation shall commence no later than July 1 of the year following the year the Agency signed the MOU.

Sewer Service

- Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 2008.
- Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

**Test for Condition 1**

Agency is Fully Metered	NO
Agency Employed Conserving WATER Rate Structure	YES
Agency Provides Sewer Service	YES
Agency Employed Conserving SEWER Rate Structure	NO

**BMP 11 WATER COVERAGE STATUS SUMMARY:**

Coverage period has not started for this water supplier.

**BMP 11 SEWER COVERAGE STATUS SUMMARY:**

Water supplier is not currently on track to meet the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 12 Coverage: Conservation Coordinator**

Reporting Unit:

Reporting Period:

City of Folsom

07-08

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

**Test for Compliance**

<u>Report Year</u>	<u>Report Period</u>	<u>Conservation Coordinator Position Staffed?</u>	<u>Total Staff on Team (Incl. CC)</u>
1999	99-00		
2000	99-00		
2001	01-02		
2002	01-02		
2003	03-04		
2004	03-04		
2005	05-06	YES	1
2006	05-06	YES	2
2007	07-08	YES	2
2008	07-08	YES	3

**BMP 12 COVERAGE STATUS SUMMARY:**

Water supplier has met the coverage requirements for this BMP.

Reported as of 7/13/09

**BMP 13 Coverage: Water Waste Prohibition**

Reporting Unit:

Reporting Period:

City of Folsom

07-08

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

**Test for Condition 1****Agency or service area prohibits:**

Year	<u>Gutter Flooding</u>	<u>Single-Pass Cooling Systems</u>	<u>Single-Pass Car Wash</u>	<u>Single-Pass Laundry</u>	<u>Single-Pass Fountains</u>	<u>Other</u>	<u>RU has ordinance that meets coverage requirement</u>
1999							
2000							
2001							
2002							
2003							
2004							
2005	YES	NO	NO	NO	NO	NO	NO
2006	YES	NO	NO	NO	NO	NO	NO
2007	YES	NO	NO	NO	NO	NO	NO
2008	YES	YES	YES	YES	YES	YES	YES

**BMP 13 COVERAGE STATUS SUMMARY:**

Water supplier is not currently on track to meet the coverage requirements for this BMP.



Reported as of 7/13/09

## BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: City of Folsom

### MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement.

An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

**Status: Water supplier is on track to meet the coverage requirements for this BMP. as of 2009**

<u>Coverage</u> <u>Year</u>	<u>BMP 14 Data</u> <u>Submitted to</u> <u>CUWCC</u>	<u>Exemption</u> <u>Filed with</u> <u>CUWCC</u>	<u>ROR</u> <u>Ordinance</u> <u>In Effect</u>	<u>Exhibit 6</u> <u>Coverage</u> <u>Req'mt</u> <u>(AF)</u>	<u>Toilet</u> <u>Replacement</u> <u>Program</u> <u>Water Savings*</u> <u>(AF)</u>
2006	YES	NO	NO	17.50	29.62
2007	YES	NO	NO	49.79	70.03
2008	YES	NO	NO	94.51	121.39
2009	NO	NO	NO	149.60	170.71
2010	NO	NO	NO	213.27	
2011	NO	NO	NO	283.98	
2012	NO	NO	NO	360.39	
2013	NO	NO	NO	441.31	
2014	NO	NO	NO	525.75	
2015	NO	NO	NO	612.82	

\*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

### BMP 14 COVERAGE STATUS SUMMARY:

Water supplier is on track to meet the coverage requirements for this BMP.

## BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: City of Folsom

### BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

	<u>Single</u> <u>Family</u>	<u>Multi-</u> <u>Family</u>
<b>1992 Housing Stock</b>		
Average rate of natural replacement (% of remaining stock)	.04	.04

Average rate of housing demolition (% of remining stock)	.005	.005
Estimated Housing Units with 3.5+ gpf Toilets in 1997	3519.61	1748.75
Average resale rate	.0491	.104
Average persons per unit	2.78	2.2
Average toilets per unit	2	1.5
Average savings per home (gpd; from Exhibit 6)	43.1	49

### Single Family Housing Units

<u>Coverage</u> <u>Year</u>	<u>Unretrofitted</u> <u>Houses</u>	<u>Houses</u> <u>Sold</u>	<u>Houses</u> <u>Unsold</u>	<u>Sold and</u> <u>Retrofitted</u>	<u>Sold and</u> <u>Already</u> <u>Retrofitted</u>	<u>Unsold</u> <u>and</u> <u>Retrofitted</u>	<u>Gross</u> <u>ROR</u> <u>Savings</u> <u>(AFY)</u>	<u>Nat'l</u> <u>Replacement</u> <u>Only</u> <u>Savings</u> <u>(AFY)</u>	<u>Net ROR</u> <u>Savings</u> <u>(AFY)</u>
2006	3214.46	171.95	3330.07	171.95		133.20	121.43	113.46	7.97
2007	2935.77	171.09	3313.42	157.04	14.05	121.65	134.88	119.95	14.93
2008	2681.24	170.23	3296.85	143.43	26.81	111.11	147.17	126.19	20.98
2009	2448.77	169.38	3280.37	130.99	38.39	101.47	158.39	132.17	26.22
2010	2236.46	168.54	3263.96	119.63	48.90	92.68	168.64	137.92	30.72
2011	2042.56	167.69	3247.64	109.26	58.43	84.64	178.00	143.44	34.56
2012	1865.47	166.85	3231.41	99.79	67.07	77.30	186.54	148.74	37.81
2013	1703.73	166.02	3215.25	91.14	74.88	70.60	194.35	153.83	40.52
2014	1556.02	165.19	3199.17	83.24	81.96	64.48	201.48	158.71	42.77
2015	1421.11	164.36	3183.18	76.02	88.35	58.89	207.99	163.41	44.59

### Multi Family Housing Units

<u>Coverage</u> <u>Year</u>	<u>Unretrofitted</u> <u>Houses</u>	<u>Houses</u> <u>Sold</u>	<u>Houses</u> <u>Unsold</u>	<u>Sold and</u> <u>Retrofitted</u>	<u>Sold and</u> <u>Already</u> <u>Retrofitted</u>	<u>Unsold</u> <u>and</u> <u>Retrofitted</u>	<u>Gross</u> <u>ROR</u> <u>Savings</u> <u>(AFY)</u>	<u>Nat'l</u> <u>Replacement</u> <u>Only</u> <u>Savings</u> <u>(AFY)</u>	<u>Net ROR</u> <u>Savings</u> <u>(AFY)</u>
2006	1505.43	180.96	1559.05	180.96		62.36	73.62	64.09	9.53
2007	1295.96	180.06	1551.25	155.78	24.27	53.68	85.12	67.76	17.36
2008	1115.64	179.16	1543.49	134.11	45.05	46.22	95.01	71.28	23.74
2009	960.41	178.26	1535.78	115.45	62.81	39.78	103.53	74.66	28.87
2010	826.78	177.37	1528.10	99.38	77.99	34.25	110.87	77.91	32.96
2011	711.74	176.48	1520.46	85.55	90.93	29.48	117.18	81.03	36.16
2012	612.71	175.60	1512.86	73.65	101.95	25.38	122.62	84.02	38.60
2013	527.45	174.72	1505.29	63.40	111.32	21.85	127.29	86.89	40.40
2014	454.06	173.85	1497.76	54.58	119.27	18.81	131.32	89.65	41.67
2015	390.89	172.98	1490.28	46.99	125.99	16.19	134.79	92.30	42.49

# **TAB 3**

### **City of Folsom BMP 1.2 Water Loss Control (formerly BMP 3) Compliance Plan**

The City has begun its Water Loss Control Program in 2010. The program will satisfy all requirements of the CUWCC BMP 1.2 (formerly BMP 3).

The elements of the program will include:

- Completion of the AWWA Water Audit and Balance worksheet annually.
- City staff attended CUWCC/AWWA training on the AWWA water audit method and component analysis on October 27<sup>th</sup> and 28<sup>th</sup>, 2010 in Sacramento.
- The City has executed a contract with Water Systems Optimization, Inc. to perform a two-year water management control program, including a distribution system water audit of each of the City's seven water pressure zones.

The 2010-2011 Water Loss Control budget is \$560,000. See tabs 5 & 6.

### **City of Folsom BMP 1.3 Metering with commodity rates for all new connections and retrofit of existing connections (formerly BMP 4) Compliance Plan**

The City of Folsom's 2008 BMP 4 report listed 1,999 of 5730 meters had been installed at homes built before 1992. The City was short 866 meters of the 50% target needed to be on track in 2008. In 2009 the remaining 3731 meters were installed fulfilling the BMP requirement.

The budget for the Water Meter Implementation was \$4,276,175. See tabs 7 & 8.

# **TAB 4**

## **City of Folsom BMP Compliance through the CUWCC GPCD Option**

The City of Folsom plans to achieve compliance with all programmatic BMPs including BMP 6 - High-Efficiency Washing Machine Rebates and BMP 9 - Conservation Programs for CII Accounts through the CUWCC's GPCD reporting option. The elements of our GPCD program are:

### **Irrigation Efficiency**

Outdoor water use represents the largest demand on our system and provides the greatest opportunity for savings. We will direct more of our resources towards residential and large landscape irrigation efficiency. Our landscape irrigation program will include:

- Residential Water-Wise House Calls - Trained staff familiar with landscape and irrigation will perform assessments of irrigation systems and one on one education for residential single family customers.
- Large Landscape Irrigation Audits - Certified auditors will perform irrigation audits of large landscapes at parks, municipal facilities, schools, churches, commercial, and other properties. Water budgets will be established and property owners or managers will receive regular updates on their progress. Updates will include information on actual water use compared to water budgets utilizing DWR's spatial ETo information and the financial benefits of reduced water use. Currently the City of Folsom's Water Management Program has two Irrigation Auditors on staff certified by the Irrigation Association.
- Rebates - The City of Folsom will concentrate its rebate programs on landscape and irrigation programs. Current programs featuring rebates of up to \$500 for the installation of weather based (smart) irrigation controllers and \$200 for the improvement of in-ground equipment will be continued and enhanced.
- Outreach and Education - Each year the City will conduct a series of homeowner workshops focusing on water conservation in the landscape. Workshops will use local experts, academics, and the Sacramento County Master Gardeners. Subject matter will include water efficient landscape design, plant selection, irrigation, composting, and River Friendly Landscaping Principles. The City is currently cooperating regionally through the Regional Water Authority to provide training to landscape professionals with the Green Gardener Training Program as well as a variety of seminars throughout the year. Don Smith, the City's Water Management Coordinator serves as the Chair of the Regional Water Authority's Landscape Committee.

Please see tab 10 for examples of successful irrigation efficiency projects.

The estimated annual budget for our Irrigation Efficiency Program is \$119,410

## Water Waste Prohibition

The City of Folsom experiences its peak water demands during the summer months when irrigation water use is at its greatest. To address water waste and reduce outdoor demand, the City employs seasonal staff to conduct water waste patrols to enforce the City's Water Conservation Ordinance, FMC 13.26. The ordinance provides for penalties after a customer's third water waste notice. The penalty may be a fine or the discontinuation of water service. The prohibitions are as follows:

### FMC 13.26.050      Wasteful Use of Water

Any of the following acts or omissions, whether intentional, unintentional, willful or negligent, shall constitute the wasteful use of water:

- A. Water flowing away from a property caused by excessive application(s) of water beyond reasonable or practical irrigation rates, duration of application, or other than incidental applications to impervious surfaces.
- B. Causing or permitting an amount of water to discharge, flow, run to waste into or flood any gutter, sanitary sewer, water course or storm drain, or to any adjacent lot, from any tap, hose, faucet, pipe, sprinkler, or nozzle. In the case of irrigation, "discharge," "flow" or "run to waste" means that water is applied to the point that the earth intended to be irrigated has been saturated with water so that additional applied water then flows over the earth. In the case of washing, "discharge," "flow" or "run to waste" means that water in excess of that necessary is applied to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area.
- C. Allowing water fixtures or heating or cooling devices to leak or discharge water.
- D. Maintaining ponds, waterways, decorative basins or swimming pools without water recirculation devices or with known leaks, both seen and unseen.
- E. Discharging water from, and refilling, swimming pools, decorative basins or ponds in excess of the frequency reasonably necessary to maintain the health, maintenance or structural considerations of the pool, basin or pond, as determined by the Director.
- F. Continued operation of an irrigation system that applies water to an impervious surface or that is in disrepair.
- G. Use of a water hose not equipped with a control nozzle capable of completely shutting off the flow of water except when positive pressure is applied.

The estimated annual budget for Water Waste Enforcement is \$33,980

### Meter Retrofit and Fixed Network

The City of Folsom completed the first phase of its Water Meter Implementation Plan in 2006. Approximately 1000 homes in the City's Ashland district were retrofitted with meters and converted from flat rate water service to metered rates. Since that time 100 % of the City's single-family homes have been retrofitted with water meters. In March of 2011 flat rate customers will begin seeing their consumption data on their utility bills and will be converted to metered rates in January of 2012. Customers will become financially responsible for their water consumption and demand will be reduced.

In addition to installing meters and converting residential customers to metered rates the City has installed an automatic fixed network meter reading system. Each meter will transmit reads on an hourly basis and monitor data for abnormalities indicating leaks in the customer's system. The fixed network will allow staff to intervene much earlier, greatly reducing water loss on the customer side of the meter.

The budget for installing the fixed network is \$3,300,000.



## City of Folsom CUWCC GPCD Compliance Plan

According to the CUWCC MOU an agency may choose a GPCD reduction as an alternative compliance option beginning in 2009. A baseline GPCD of potable water use must be established for the purposes of calculating the reduction targets. An agency may choose the ten year average GPCD from 1997 to 2006 or the 2006 GPCD. The City of Folsom has chosen the 2006 GPCD as its baseline. The agency must show a 1.8% annual reduction in GPCD.

### GPCD Calculation

Compliance Table Year	Compliance Report	Target (% Baseline)	Highest Acceptable Bound (%Baseline)
2010	1	96.4	100
2012	2	92.8	96.4
2014	3	89.2	92.8
2016	4	85.6	89.2
2018	5	82	82

<u>Year</u>	<u>Population</u>	<u>Potable Water Use (AF)</u>
2006	56804	23619
2009	59658	23690

$$2006 \text{ GPCD} = 23619 \times 43560 \times 7.48 / 56804 / 365 = 371$$

$$2009 \text{ GPCD} = 23690 \times 43560 \times 7.48 / 59658 / 365 = 354$$

$$2010 \text{ Target GPCD} = 371 \times 96.4\% = 358$$

The 2009 GPCD of 354 is lower than the 2010 GPCD target of 358.

The City of Folsom is in compliance with the CUWCC GPCD Compliance Option.

From the CUWCC MOU, Exhibit 1, Pages 51,52 & 53, as amended 12/10/2008

### **GPCD Compliance Option**

Gallons per capita daily (GPCD) is the third compliance approach for the MOU. The combined water savings from implementation of the Foundational and Programmatic BMPs should produce greater water savings than the Programmatic BMPs themselves. Since most Foundational BMPs are not quantified, the GPCD approach evaluates compliance by evaluating the overall reduction in per capita water demand over time. One measure of efficiency, GPCD, indicates the increase in efficiency in water demand over time, by dividing demand by population, which gives average water consumption value per person served. The GPCD Approach includes the following sections: Potable Water GPCD Equation; Baseline GPCD; GPCD Target; Biennial GPCD Targets; Compliance; Appeals and GPCD Calculation Refinement.

#### **Potable Water GPCD Equation**

Potable Water GPCD = (PWI – PWS) / Pop / 365; where

1. PWI = Potable Water Into the retail water agency's service area distribution system.
2. PWS = Potable Water taken out of the retail water agency's service area distribution system and:
  - placed into storage and/or
  - delivered to an agricultural customer through a dedicated agricultural meter, at discretion of the retail water agency.
3. Pop = residential population of the retail water agency's service area.

#### **Baseline GPCD**

The Baseline GPCD shall equal the average annual Potable Water GPCD for the years 1997 through 2006. Signatory Water Suppliers who signed the MOU prior to 1997 and can demonstrate significant investment in water conservation may propose a different Baseline period as outlined in the MOU Compliance Policy.

#### **GPCD Target**

For purposes of compliance, the 2018 GPCD Target for all signatories as of July 1, 2009 shall equal Baseline GPCD multiplied by 0.82 (an 18% reduction).

#### **Biennial GPCD Targets**

Using the Compliance Table below, for each "Year" in the table, a retail water agency's Biennial GPCD Target shall equal its Baseline GPCD multiplied by that year's Target (% Baseline). A retail water agency may choose a starting point as either its Baseline GPCD or its 2006 Potable Water GPCD.

## Compliance

For retail water agencies choosing the GPCD Option for compliance with the Programmatic BMPs, the retail water agency shall submit the following calculations along with supporting data as part of their first normal biennial report for that period:

- (1) Potable Water GPCD for each year in the baseline period;
- (2) 2018 GPCD Target and five Biennial GPCD Targets; and

A retail water agency shall be considered to be in compliance with the BMPs in any reporting period when it submits the following:

- (1) Complete "Water Supply & Reuse" and "Accounts & Water Use"
- (2) Supporting data necessary to calculate that reporting period's

Potable Water GPCD; and

- (3) Calculations showing the reporting period's Potable Water GPCD is less than or equal to that period's Biennial GPCD Target, or Highest Acceptable Bound when the period's Potable Water GPCD has been weather-adjusted.

Compliance will be evaluated in relation to the Compliance Table below and relative progress toward the goal will be acknowledged in Council Compliance Reports. For signatory agencies signing the MOU after July 1, 2009, the compliance table will be read as five increments with reporting goals relative to their 1st through 5th Compliance reports.

Compliance Table Year	Compliance Report	Target (% Baseline)	Highest Acceptable Bound (%Baseline)
2010	1	96.4	100
2012	2	92.8	96.4
2014	3	89.2	92.8
2016	4	85.6	89.2
2018	5	82	82

## Appeals

An appeals/ adjustment process will be available, as outlined in the MOU Compliance Policy, for substantiated exceptional impacts to GPCD such as exceptional use of potable water for wildfire suppression and significant changes to a signatory's economic or customer demographics.

Signatories that signed the MOU prior to 1997 (the beginning of the Baseline Period), and that can substantiate significant investments in conservation leading to declines in water consumption as measured by GPCD, may file an appeal to adjust the baseline period to reflect per capita water demands in the period prior to their signing the MOU.

## GPCD Calculation Refinement

CUWCC GPCD subcommittee shall provide, no later than December 31, 2009, acceptable methods retail water agencies may use when weather-normalizing data for compliance with this BMP. Additional methods or revisions to these methods may be approved by the Steering Committee from time-to-time.

# **TAB 5**

DATE: September 27, 2010

TO: Mayor and City Council Members

FROM: City Manager's Office, Environmental and Water Resources Development

SUBJECT: **RESOLUTION NO. 8741 - A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT WITH WATER SYSTEMS OPTIMIZATION, INC. TO CONDUCT A TWO-YEAR WATER MANAGEMENT CONTROL PROGRAM AND THE APPROPRIATION OF FUNDS**

### **BACKGROUND / ISSUE**

On January 13, 2009, the City Council, under Resolution 8425, authorized the City Manager to submit applications for grant funds to the U.S. Department of Interior, Bureau of Reclamation for System Optimization Reviews (SOR). In September 2009, the Bureau of Reclamation (USBR) awarded the City a Grant Assistance Agreement for \$286,833 to help cover some of the expenses identified in the City's SOR program. The grant identified a cost-sharing effort between the City and the Bureau of Reclamation. The City's 50% minimum matching cost share includes staff labor, field construction and consultant costs to develop and implement the program.

The Utilities Department is looking to continue efforts to become more efficient in delivering the water to our customers and increase the water distribution system efficiency. Due to the limitations of the City's dry year water supply, the City is currently analyzing ways to increase efficiencies in our water delivery system. The SOR Grant provides additional funding to perform a two-year water management control program that would otherwise not be available. This water management control program is the foundation of the SOR as it helps identify areas of conserved water and improves system efficiencies. The goal of these efforts is to ensure the long-range reliability of water supply for the region, as well as preserving our natural resources and the American River.

### **POLICY / RULE**

In accordance with Chapter 2.36 of the Folsom Municipal Code, professional services costing \$41,750 or greater shall be contracted for by the City Council.

### **ANALYSIS**

Through this grant opportunity, the City will be able to further our efforts to improve water system management in the distribution system and provide great efficiencies in water use. Water Systems Optimization, Inc. will perform a two-year water management control program, including a distribution system water audit of each of the City's seven water pressure zones. This program will help the City meet the state mandated 20 percent reduction in per capita urban water use by 2020.

Due to the technical expertise required and short-term duration for this project, staff determined that it is not prudent to hire additional staff with expertise in assessment and optimization of water distribution facilities. Accordingly, staff is proposing to use contract services for the technical elements of this program; however, as shown in the table below, City staff has minimized the total consultant effort by dedicating significant staff

PROJECT TASK ASSIGNMENT MATRIX AND BUDGET YEAR ONE					
Staff Designation	Project Director	Sr. Project Director	Jr. Project Director	Consultant	Est. City Staff Effort
TASKS	Estimated hours per task	Estimated hours per task	Estimated hours per task	Total Hours	Total Hours
Kick-off meeting	0	8	8		8
Task 1 - Initial Comprehensive Leak Detection Campaign	N/A	N/A	N/A		3,200
Task 2 - Initial Bottom-Up DMA Measurements in Zone 1 and Zone 4,5,6	40	204	108		600
Task 3 - Second Round of Comprehensive Leak Detection Campaign	N/A	N/A	N/A		3,200
Task 4 - Final Bottom-Up DMA Measurements in Zone 1 and Zone 4,5,6	8	52	20		40
Task 5 - Convert Zone 2 and 3 into Permanent DMAs	8	80	40		400
Task 6 - Design and Implement Data Analysis and Management System for Leakage Monitoring in all DMAs	40	120	80		80
Task 7 - Assess Potential for Subdividing Zone 2 into two DMAs and Subdivide if Possible	8	40	40		40
Task 8 - Pressure Management	48	260	200		600
Task 9 - Calculate Economic Leakage Intervention Level of Each DMA	16	80	16		16
Task 10 - Training of CFUD Personnel on Water Loss Management, Data Handling and Data Management	0	80	40		240
Task 11 - Project Management of Entire Water Loss Control Program - Two Years (Draft and Final Report)	180	460	340		240
<b>Total Time, hours</b>	<b>348</b>	<b>1,384</b>	<b>892</b>	<b>2,624</b>	<b>8,664</b>

time to the field investigation and operational elements of this two-year water management control program.

The two-year water management control program will include the following tasks.

- Perform an initial comprehensive leak detection campaign using portable acoustic leak detection equipment of the entire water distribution system; (276 miles)
- Convert the water pressure zones 1-7 into District Metering Areas (DMAs) which allows for specific monitoring locations within the distribution system;
- Compare the water usage for each of the DMAs and potential system improvements;
- Develop system pressure management strategies;
- Quantify potential water savings;

- Design and implement a data analysis and water management system for the City;
- Establish water management, data handling, and data management systems to track long-term measurable results

A System Optimization Review (SOR) is a broad look at system-wide efficiency focused on improving efficiency and operations of a water delivery system, water district, or water basin. The SOR will result in a plan of action that focuses on improving efficiency and operations on a regional and basin perspective. This program will allow the City to implement the system improvements identified through the SOR Grant. The proposed water management control program will potentially achieve a savings of 5,000 – 10,000 acre-feet of water per year, which can be made available for banking, sale, lease, or transfer. The results of this water management control program will also place the City in a position for future grant opportunities through the Bureau's Water Marketing and Efficiency Grant program.

### **FINANCIAL IMPACT**

The total request for this project is \$560,000. Funds are available in the Water Impact Fee Fund (Fund 456), but were not budgeted for in FY 2010/11 for this project. An appropriation for the full amount of the contract will be required to receive funds and pay for contracted services. A majority of these costs will be recoverable through the System Optimization Review Grant.

### **ATTACHMENT**

Resolution No. 8741 – A Resolution Authorizing the City Manager to Execute an Agreement with Water Systems Optimization, Inc. to Conduct a Two-Year Water Management Control Program and the Appropriation of Funds

### **RECOMMENDATION/ CITY COUNCIL ACTION**

The Utilities Department recommends that the City Council pass and adopt Resolution No. 8741- A Resolution Authorizing the City Manager to Execute an Agreement with Water Systems Optimization, Inc. to Conduct a Two-Year Water Management Control Program and the Appropriation of Funds.

Submitted,

---

Kenneth V. Payne, CHIEF OF ENVIRONMENTAL  
AND WATER RESOURCES DEVELOPMENT

**RESOLUTION NO. 8741**

**A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT WITH WATER SYSTEMS OPTIMIZATION, INC. TO CONDUCT A TWO-YEAR WATER MANAGEMENT CONTROL PROGRAM AND THE APPROPRIATION OF FUNDS**

**WHEREAS**, the City received \$286,833 in federal grant funds through the U.S. Department of the Interior, Bureau of Reclamation for Water System Optimization Reviews; and

**WHEREAS**, the City is working to become more efficient in conserving water and protecting this valuable resource to the community; and

**WHEREAS**, the City recognizes the value of regional partnerships in water conservation efforts; and

**WHEREAS**, the City desires to conduct water conservation projects to make its water distribution system more efficient and optimize its water use; and

**WHEREAS**, Water Systems Optimization, Inc., by reason of their past experience and knowledge for performing these types of services, is qualified and recommended to perform the required consulting services; and

**WHEREAS**, funds are available in the Water Impact Fee Fund (Fund 456); and

**WHEREAS**, the agreement will be in a form acceptable to the City Attorney:

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Folsom authorizes:

- (1) The City Manager to Execute an Agreement with Water Systems Optimization, Inc. to Conduct a Two-Year Water Management Control Program and the Appropriation of Funds for a not-to-exceed fee of \$560,000
- (2) The Finance Director to appropriate funds in the Water Impact Fee Fund (Fund 456) in the amount of \$560,000.

**PASSED AND ADOPTED** on this 12<sup>th</sup> day of October, by the following roll-call vote:

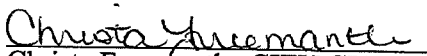
**AYES:** Council Member(s): Howell, Miklos, Morin, Sheldon, Starsky

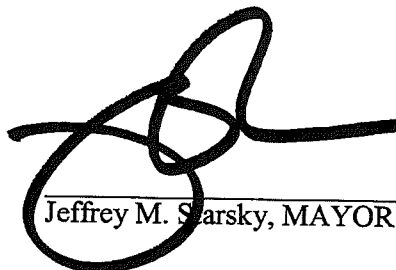
**NOES:** Council Member(s): None

**ABSENT:** Council Member(s): None

**ABSTAIN:** Council Member(s): None

**ATTEST:**

  
Christa Freeman, CITY CLERK

  
Jeffrey M. Starsky, MAYOR

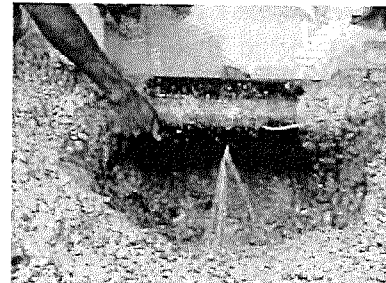
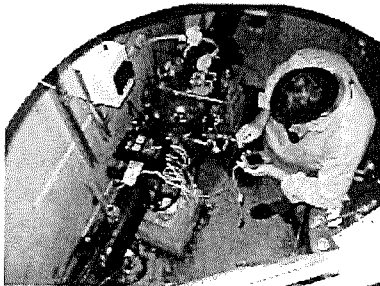
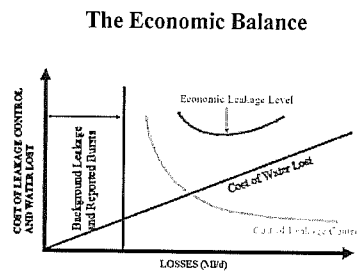
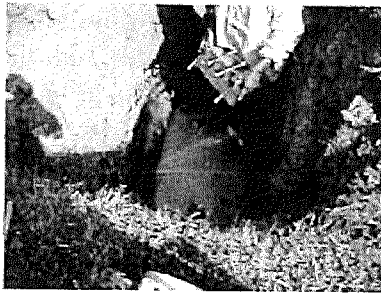
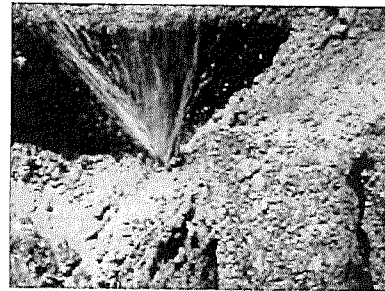
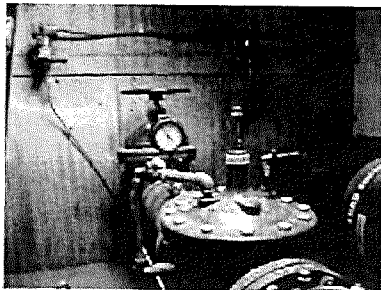


# **TAB 6**

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*Proposal*  
*for a*  
**Two Year Water Loss Control Program**  
*for the*  
*City of Folsom Utilities Department*



**W S O**

Water Systems Optimization, Inc  
233030<sup>th</sup> Street, San Francisco, CA 94131

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Water Systems Optimization, Inc.  
233 30<sup>th</sup> Street  
San Francisco CA 94131  
United States of America  
Tel: 1-415-538-8641  
Fax: 1-814-286-61705752

March 12, 2010

Kyle Ericson  
Senior Engineer/Compliance Officer  
Utilities Department  
City of Folsom  
50 Natoma Street  
Folsom, CA 95630

Dear Mr. Ericson

#### **ROPOSAL – TWO YEAR WATER LOSS CONTROL PROGRAM**

Water Systems Optimization, Inc. (WSO) is pleased to provide this proposal to conduct a Two Year Water Loss Control Program for the City of Folsom Utilities Department (CFUD). In choosing a partner to provide assistance for water loss control and management efforts, it is essential to choose a company that has proven technical expertise in this specialized field, that has a detailed understanding of the water loss management challenges CFUD faces, and that has a proven track record of successfully completed water loss control programs. WSO believes that we are ideally positioned to provide the best service and advice due to our undoubted detailed understanding of CFUD's water loss challenges, our track record of successfully implemented water loss control programs and our commitment to providing service excellence. The proposed Two Year Water Loss Control Program will reduce leakage losses in the CFUD distribution system to optimum levels. Based on currently available data it is estimated that this program will result in significant cost savings for CFUD, which are conservatively estimated to be in the range of \$1 .4M per year once the program is completed.

WSO is highly specialized in water loss management and has carried out many successful district measurement and leak detection survey contracts for water utilities across North America. Our ability to perform the work, our staff experience and our past performance record are without question as can be vouched for by our many satisfied clients and the number of repeat contracts we regularly win with those clients.

Please find enclosed our Proposal for a Two Year Water Loss Control Program. If you have any questions, feel free to contact me at 1-415-538-8641 or by e-mail at [reinhard.sturm@wso.us](mailto:reinhard.sturm@wso.us).

Sincerely,

Reinhard Sturm  
Vice President - WSO

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**Appendix A - Proposed Equipment Information for Leak Detection and Flow and Pressure Measurements**

**Appendix B - Example Leak Repair Form**

# 1 TWO YEAR WATER LOSS CONTROL PROGRAM

## 1.1 Background and Goal of the Water Loss Control Program

The results of a Water Audit (WA) and component analysis of real losses, carried out by WSO for Calendar Year 2008, indicate that CFUD is losing a significant amount of water in its distribution network through physical losses (Real Losses). Real losses are currently estimated to be in the order of 2,699MG. The monetary value of the real loss volume based on discussions with CFUD key stakeholders is \$450/AF (\$1,351 per MG), which reflects the cost for water supply, operations, and distribution of one AF of treated water (see Table 1-1). This is an appropriate valuation of real losses given the current supply and demand situation in CFUD. The avoided cost of water which the California Urban Water Conservation Council (CUWCC) recommends using for evaluating water conservation programs, would be significantly higher than the cost used to value real losses for CFUD.

Table 1-1 CFUD Water Loss Performance Indicators and Cost of Real Losses

	Total Real Losses [MG]	Total Real Losses [gal/serv con/day]	UARL [MG]	ILI	Cost of Real Losses
2008 Water Audit (WA) Results	2,699	419	118	22.9	\$3,727,319
Conservative Real Loss Estimates (50% of 2008 WA results)	1,350	210	118	11.4	\$1,863,660
Target Level of Real Loss Volume	337	52	118	2.9	\$465,915

Based on the valuation discussed above the CFUD is currently losing about \$3.7M in real losses. However, since residential consumption was not metered in 2008 the WA results might overestimate real losses. When taking a very conservative approach and assuming that real losses are 50% less than calculated in the 2008 WA, real losses are still costing CFUD about \$1.86M (equals about \$5,000/day). This clearly highlights the immediate need for action to start reducing real losses in the system and therefore reducing the financial losses CFUD currently occurs.

Based on the work carried out by WSO in other California water utilities and throughout the United States it is reasonable to argue that, given the supply and demand situation CFUD is facing, that the target real loss volume for CFUD should be around 337 MG/Year or 52 gallons/service connection/day, or an Infrastructure Leakage Index (ILI) of around 3. Reducing Real Losses to 337MG (ILI 3), which is a very realistic goal for a water loss control program, would mean that the cost for water lost due to leakage in the distribution system is reduced from \$1.86M/Year to about \$0.46M/Year. Therefore, it can be expected that the water loss control program outlined by WSO in this proposal will achieve real loss savings of about 1,000MG/Year, with monetary savings of about \$1.4M/Year. Not only will the water loss control program provide immediate cost savings but it will also provide CFUD with an additional 1,000MG/Year that can be used to provide water to new customers and to offset

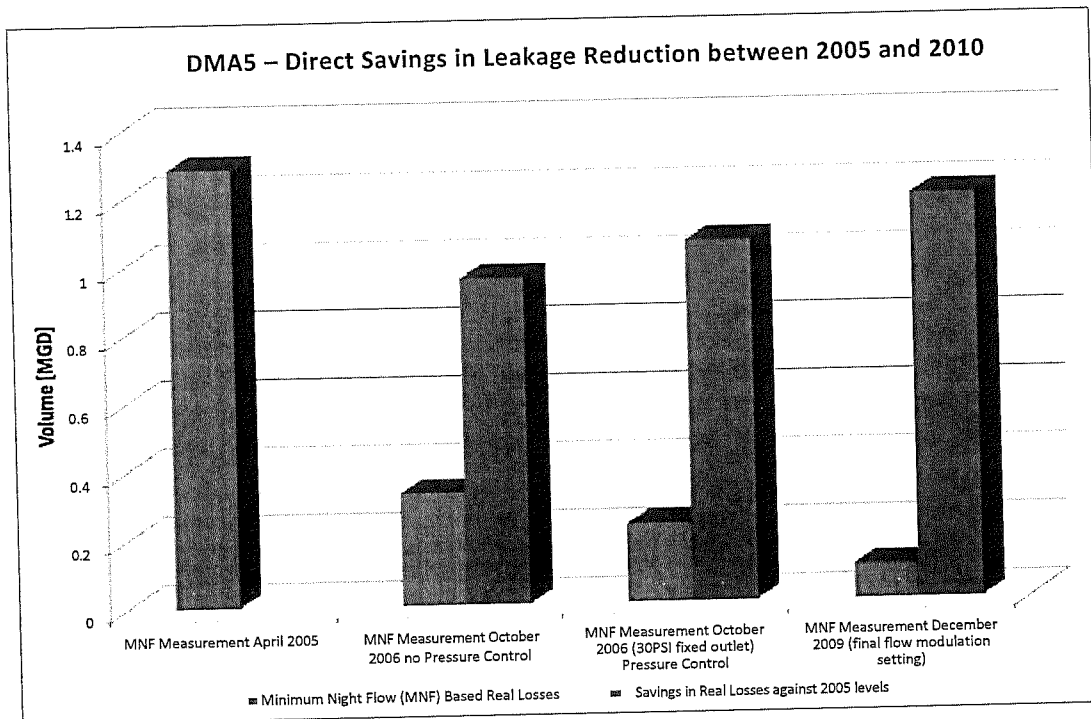
needs for more aggressive demand side conservation. Furthermore, this water loss program will help CFUD significantly in meeting Governor Schwarzenegger's goal to achieve a 20 percent reduction in per capita urban water use by 2020.

The Water Loss Control Program outlined in this proposal was designed to provide the CFUD with the following key benefits:

- Reduction of leakage losses to economic levels providing savings of around \$1.4M/Year after completion of the program.
- Implementation of a water loss control program that achieves the targeted real loss reduction in a sustainable manner.
- Provide CFUD with the water loss management tools and training necessary to maintain the optimized real loss volume.
- Increase the lifespan of infrastructure and reduce background leakage through the optimization of pressure management.

WSO has implemented a similar water loss control program, as outlined in this proposal, in an area of the Philadelphia Water Department (PWD) distribution network between 2006 and 2009. The area that was targeted by the 3 year water loss control program has about 2,500 service connections and had pre-intervention real losses of around 550/gallons/service connection/day (in 2005), a water loss problem very similar in scale to the one CFUD is currently facing. After completion of the 3 year water loss control program the real losses were sustainably reduced by about 1.2MGD to real losses of 44gal/service connection/day (see Figure 1-1). PWD achieved sustainable savings of about \$100,000/Year in this one target area through the successful implementation of WSO's water loss control program.

Figure 1-1 Results of a Water Loss Control Program Implemented by WSO for the PWD



The following sections provide the proposed outline of the CFUD two year water loss control program and the related costs.



## 2 WATER LOSS CONTROL PROGRAM TASKS

The following tasks are necessary to successfully implement the proposed water loss control program.

### Kick-off and Shareholder meeting

CFUD will develop a list of key personnel for this project, which will hereafter be referred to as the Project Team. A kick-off meeting will be held to discuss the objectives and components of the Two Year Water Loss Control Program. Following the kick-off meeting several meetings will be held with the Project Team, which will include staff from:

è Customer Services/Billing

è Water Production and Distribution

è Water Services Engineering and Technical Support

A priority list of goals will be prepared to ensure that the key objectives of the Project Team are identified. The Project Team will be involved in the approval of all water loss management implementations and analysis and approval of all findings throughout the program.

### 2.1 Task One – Initial Comprehensive Leak Detection Campaign

The financial analyses have shown that real losses are costing CFUD about \$5,000 per day. Therefore it is necessary to start the initial round of leak detection right after the project kickoff.

The Leak Detection Survey will utilize state-of-the-art portable acoustic leak detection equipment and Leak Noise Correlators. Technical specifications of the equipment that WSO proposes to use are provided in Appendix A.

The entire distribution system (276 miles) will be checked, by performing an initial sweep of the system by sounding all fire hydrants, valves and meters for leak indications. The listening points will be no more than 500 feet apart to ensure that potential leak sounds are not missed.

Once an area has been sounded, the places where leak indications were located will be investigated to determine if a leak does, in fact, exist in that area. During the initial sweep, if a leak indication is significant enough to indicate a leak that might cause damage to private or public property; the initial sweep will be halted while the leak is pinpointed.

Once a leak has been pinpointed, it will be marked on the pavement at the closest convenient point and a leak report will be prepared. The leak report will include a sketch of the leak location along with an estimate of the type of leak, size of leak and its severity, date and time of detection and other information. The leak report will be recorded on a database maintained by WSO before being issued to CFUD for repair action. An example leak report is included at Appendix B.

After the leak has been repaired, CFUD will notify WSO of the date and time of repair and the type and size of leak repaired. This is used to compare the performance of the leak detection team in assessing the type of leak before it is excavated and to fine tune the water loss control program. The leak database is updated with the information so as to provide an

provide an estimation of the amount of leakage that has been recovered in each survey area.

Weekly leak summary reports will be provided detailing the miles of main surveyed, number of leaks pinpointed, classification of leaks and estimated leak rates. Monthly interim progress reports will be prepared detailing the progress to date.

## **2.2 Task Two – Initial Bottom-Up DMA Measurements in Zone1 and Zone4,5,6**

In parallel to Task One, WSO will commence work on converting Zone 1 and combined Zones4,5,6 into permanent District Metered Areas (DMA). A DMA is an area in the water distribution system which is specifically defined by the closure of valves and in which the water entering the district can be measured and quantified.

### **2.2.1 Subtask Two-A) – Field Tests to Verify Zone Integrity of Zone1 and Zone4,5,6**

Together with CFUD the hydraulic integrity of pressure Zone 1 and Zone4,5,6 will be verified through field tests. In case this task finds that zone boundary valves are not closing properly it might be necessary to redesign the zone boundary or replace the boundary valve.

### **2.2.2 Subtask Two-B) – Convert Zone1 and Zone 4,5,6 Into Permanent DMA**

Most water utilities in the United States, such as CFU, practice *reactive* leakage management by responding to leaks and water main breaks only after they have erupted and caused customer complaints; i.e., reported events. This approach causes a gradually rising backlog of hidden leaks that will eventually lead to very high leakage levels as currently seen in CFUD. A growing number of water utilities, however, practice *proactive* leakage management by seeking to identify and repair hidden leaks while they are small and benign, i.e. while they exist in the unreported state. By employing a DMA based leakage management approach a water utility has the ability to accurately assess leakage levels in each DMA, monitor the occurrence of new leaks in a DMA, and intervene against leakage in a DMA only when leakage rises beyond an economic intervention threshold.

For a zone to serve the purpose of a DMA it is necessary to permanently monitor supply into the DMA, zone pressure and customer consumption. WSO together with CFUD will convert pressure Zone1 into a DMA and Zones 4,5,and 6 will need to be combined into one DMA with the supply to the DMA monitored at the inflow point that supplies all three pressure zones. In addition to the flow data, pressure measurements will be recorded with pressure loggers at the DMA inlet points, the average pressure points and the critical pressure points. See Figure 2-1 for an example of DMA flow and pressure data recorded in of Nashville Metro Water Services DMA.

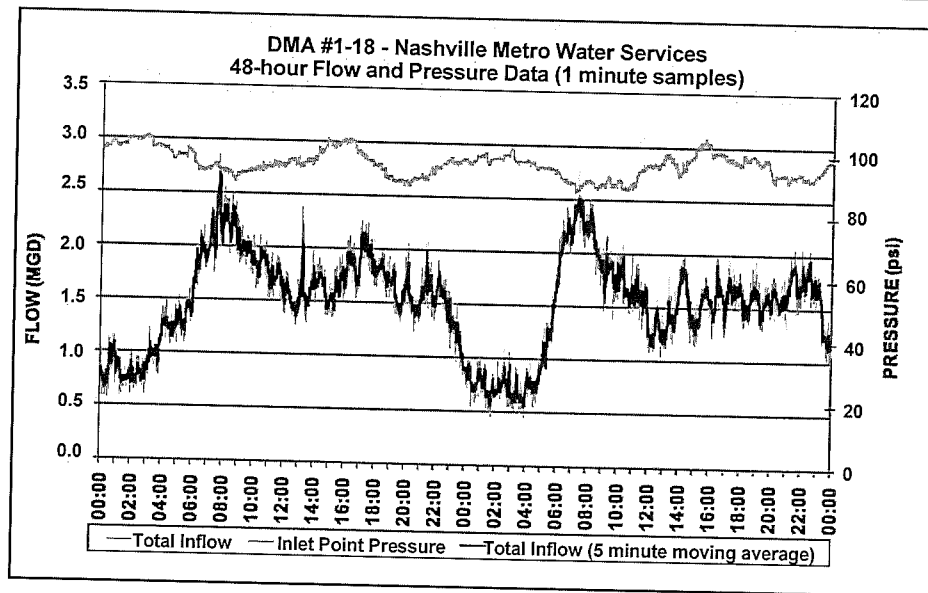


Figure 2-1 Example Flow and Pressure Data from District Measurement

### 2.2.3 Subtask Two-C) – Initial Leakage Level Measurement in DMA Zone1 and Zone4,5,6

The primary tool for determining leakage levels in a DMA is the Minimum Night-time Flow (MNF) Analysis method. In theory, the use of water by registered customers reduces to a minimum during the night hours (typically between 3am and 4am). This can be seen from the DMA inflow data in Figure 2-1. At the minimum night-time flow point, there will be two main components to the inflow to the District; usage by customers and leakage from the mains and service lines. The consumption recorded by CFUD Automated Meter Reading (AMR) system will provide the customer usage component. By subtracting the customer usage from the District inflow, the remaining leakage component is calculated. By considering the correlation between pressure and leakage it is possible to model the leakage losses over a 24hour period (see Figure 2-2).

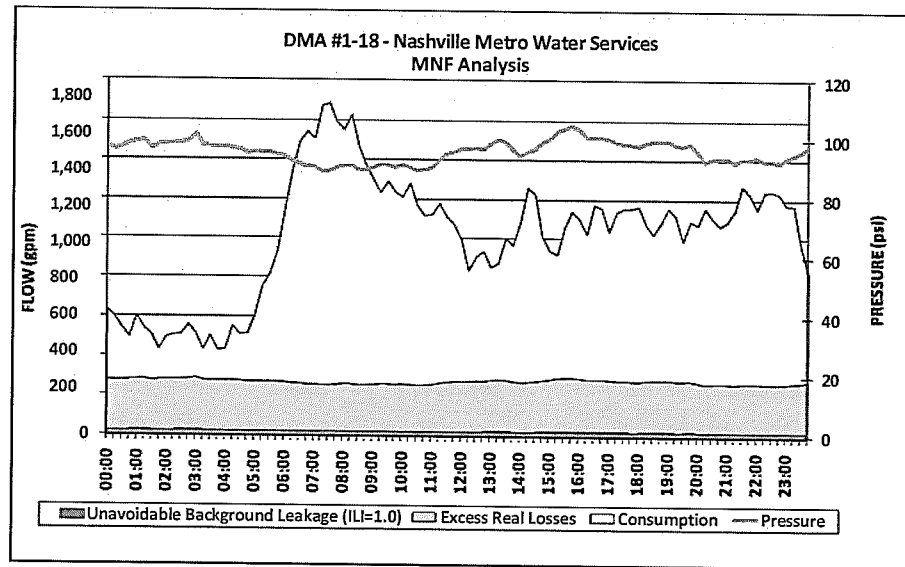


Figure 2-2 MNF Analysis of Flow and Pressure Data from a DMA

By converting Zone1 and Zone4,5,6 into permanent DMAs, leakage levels will be continuously monitored. The initial leakage level measurements will be carried out before the first round of leak detection takes place in Zone 1 and Zone4,5,6 in order to quantify a leakage baseline for those two DMAs. WSO will be able to exactly quantify how much water is lost due to leakage in Zone1 and Zone4,5,6 and how much of those leakage losses can be recovered through sonic leak detection (Figure 2-3).

MNF ANALYSIS RESULTS SUMMARY FOR DMA #1-18				
Measurement Date	Aug 12, 2009			
Day	Wednesday			
Number of Service Connections	nr.	2,464		
Miles of mains	miles	32.09		
Service Connection Density	nr. / mile	77		
Average Pressure over 24 hours	psi	96.0		
Pressure at Minimum Night Flow	psi	98.0		
Hour-Day Factor		23.5		
Minimum Night Flow	gpm	436		
Night-time Consumption	gpm	154		
Net Night Flow	gpm	282		

		Best Estimate	Upper Range	Lower Range
Total Inflow	M G D	1.468	1.468	1.468
Total Real Losses	M G D	0.398	0.402	0.394
	g / conn / d	161.4	163.0	159.8
	g/conn/d/psi	1.68	1.70	1.66
	of Total Inflow	27.1%	27.4%	26.8%
	I L I	7.11	7.19	7.05
Unavoidable Background Real Losses (ILI = 1.0)	M G D	0.038	0.038	0.038
	g / conn / d	15.4	15.5	15.2
	g/conn/d/psi	0.16	0.16	0.16
Excess Real Losses	M G D	0.360	0.363	0.356
	g / conn / d	146.0	147.5	144.5
	g/conn/d/psi	1.52	1.54	1.51
Consumption	M G D	1.070	1.066	1.074
	g / conn / d	434.4	432.7	435.9
	of Total Inflow	72.9%	72.6%	73.2%

Figure 2-3 Tabulated MNF Analysis Report

## 2.2.4 Subtask Two-D) – Comparison of Initial Leakage Levels Against Water Audit Results

The initial leakage level measurements in Zone1 And Zone4,5,6 will be compared against the results of the system wide 2008 water audit. This will provide a better understanding of the leakage losses in the entire distribution system and will also provide valuable information for the entire water loss control program.

## 2.2.5 Subtask Two-E) – Quantify Savings Achieved Through Initial Leak Detection Campaign

Since leakage levels can now be quantified on a daily bases it will be possible for WSO to monitor and quantify the reduction in leakage losses achieved through the initial leak detection and repair campaign in Zone 1 and Zone4,5,6.

### **2.2.6 Subtask Two-F) – Design and Pilot Leakage Monitoring System for DMA Zone1 and Zone4,5,6**

WSO will develop and pilot a proprietary software for CFUD that automates the calculation of leakage levels from DMA inflow, pressure and consumption data for Zone1 and Zone4,5,6. The software will automate the leakage level calculations for Zone1 and Zone4,5,6 and provide the results in a standardized report format.

### **2.3 Task Three – Second Round of Comprehensive Leak Detection Campaign**

Since leakage losses are high in the CFUD distribution system it will definitely be necessary to repeat a full system wide leak detection campaign after completion of the first leak detection sweep. The entire distribution system (276 miles) will be checked again by performing a second sweep of the system by sounding all fire hydrants, valves and meters for leak indications. The listening points will be no more than 500 feet apart to ensure that potential leak sounds are not missed. This will serve to identify leaks that were masked by larger leaks during the first sweep, leaks that developed on already weak sections of the infrastructure once a nearby leak repair has caused local system pressure to increase and in general to make sure that the entire backlog of hidden leaks is removed from the distribution system. The same approach and the same type of leak detection equipment as outlined in section 2.1 will be used.

### **2.4 Task Four – Final Bottom-Up DMA Measurements in Zone1 and Zone4,5,6**

#### **2.4.1 Subtask Four-A) – Final Leakage Level Measurement in DMA Zone1 and Zone4,5,6**

After completion of the second sweep of system wide leak detection and once all detected leaks have been repaired in DMA Zone1 and Zone4,5,6 the final leakage level will be measured and calculated using the approach outlined in section 2.2.3.

#### **2.4.2 Subtask Four-B) – Quantify Savings Achieved Through second Round of Leak Detection**

Since leakage levels can now be quantified on a daily bases it will be possible for WSO to monitor and quantify the reduction in leakage losses achieved through the second round of leak detection and repair campaign in Zone1 and Zone4,5,6. This analysis will serve to quantify the minimum leakage level than can be achieved through leak detection in DMA Zone 1 and Zone4,5,6. Any additional leakage reduction will need to be achieved through pressure management or through a much more costly option, infrastructure replacement.

#### **2.4.3 Subtask Four-C) – Calculate Background Leakage in DMA Zone1 and Zone4,5,6 and Extrapolate to Rest of System**

After all detectable leaks were removed from DMA Zone 1 and Zone4,5,6 the remaining leakage volume will be assessed by WSO. This volume is by definition due to background leakage. Background leakage represents the collective weeps and seeps across the distribution system at joints and on customer service connections. Background leakage is not acoustically detectable, but is pressure sensitive and is addressed by improved pressure management or through pipeline rehabilitation or replacement. The older or weaker the infrastructure is the higher is the volume of background leakage. It is therefore paramount for a successful leakage management strategy to understand and quantify the volume of

background leakage, since any additional expenditure on leak detection efforts will not result in a further reduction of leakage losses if they are made up by background leakage. WSO will use the background leakage results from DMA Zone1 and Zone4,5,6 to extrapolate the system wide background leakage volume.

### **2.5 Task Five – Convert Zone 2 and Zone 3 Into Permanent DMA**

To achieve efficient water loss control and management in the entire distribution network, Zones 2 and 3 will be converted into permanent DMAs using the same approach as outlined in sections 2.2.1 2.2.2.

### **2.6 Task Six – Design and Implement Data Analysis and Management System for Leakage Monitoring in all DMAs**

Once all DMAs are in place, covering the entire CFUD distribution system, it will be necessary to design a data management and analysis system capable of managing all the water loss management relevant data from each DMA. This data will include supply data to each DMA, consumption data from each DMA, and pressure data from each DMA. WSO will expand the leakage monitoring system designed for DMA Zone1 and Zone 4,5,6 to the rest of the DMAs. This system will be tailored to CFUD's data needs and WSO will solicit input from CFUD throughout the design and implementation phase to accommodate all of CFUD water loss data management needs.

The final version of the data analysis and management system for leakage monitoring will provide CFUD with an automated way of processing and managing all the water loss management relevant data, providing daily or weekly reports on leakage levels in each DMA. The system will also provide decision tools on how to react to rising leakage levels in a DMA. The leakage management system will include the results of Task 9 - The economic leakage intervention level of each DMA. For each DMA there will be a leakage intervention trigger level. Once the leakage monitoring system detects DMA leakage rising above this level, the system will recommend that CFUD reduces leakage in the DMA through leak detection and repair back to economic optimum leakage levels.

This system will be the primary tool for CFUD to successfully sustain the low leakage levels achieved by the two year water loss control program.

### **2.7 Task Seven – Assess Potential for Subdividing Zone 2 into two DMA and Subdivide if Possible**

For efficient leakage monitoring and management through the DMA approach the industry best practice recommends the size of a DMA to be less than 5,000 service connections. If a DMA has more than 5,000 service connections then it becomes more difficult to discern new leaks from the legitimate customer consumption. Task 7 will therefore assess the potential for subdividing DMA Zone2 into two separate DMAs. If the assessment finds it feasible to subdivide DMA Zone 2, then WSO together with CFUD will subdivide DMA Zone2 into two separate DMAs.

## 2.8 Task Eight – Pressure Management

It is intuitive that more water escapes from a given pipeline leak if pressure exists at a high level vs. conditions with lower pressure. Pressure management is defined as “The practice of managing system pressures to an optimum level of service ensuring sufficient and efficient supply to legitimate uses and consumers, while eliminating or reducing pressure transients and variations, faulty level controls and reducing unnecessary or excess pressures, all of which cause the distribution system to leak and break unnecessarily”. The primary goals of pressure management for leakage control and infrastructure sustainability are:

- Reduction in flow rates from reported and unreported leaks
- Reduction in flow rates from background leakage; the only other option to control background leakage is full pipeline rehabilitation/replacement
- Reduction in the frequency of new breaks occurring within a water distribution system
- Inhibiting pressure surges and transients in the pressure managed area

Two primary modes of pressure control have become prevalent in pressure managed areas throughout the world: fixed outlet pressure control and flow modulated pressure control. In fixed outlet control, the PRV provides a constant lower downstream (outlet) in the presence of higher, varying upstream (inlet) pressure. Fixed outlet hydraulic pressure control is a traditional and reliable method of pressure control and uses a basic PRV. This method is effective for areas with uniform supply characteristics, low head losses and low water demands which do not vary greatly. In contrast, flow modulated pressure control paces the PRV outlet pressure level with changes in flow/demand. As flow increases due to greater water demand, a controller increases outlet pressure at the PRV. As flow decreases, the controller reduces the PRV outlet pressure. In flow modulated control mode, the lowest safe pressure is provided at the time of the lowest flow, and the highest safe pressure is provided at the highest flow; thereby pressure is optimized. Hence, the daily high pressure is provided when customer demand is high, and the daily low pressure occurs when customer demand is low (at night) and leakage is at its highest proportion of the total flow. If a large water demand emerges due to fire fighting, water main break or other emergency, flow modulated pressure control provides additional pressure to meet the demand. This is a stark improvement over typical conditions in water distribution systems, where water pressure drops (often to dangerous levels) when a high emergency water demand occurs. Flow modulated pressure control also has the effect of leveling out pressures at the system extremities therefore helping to reduce the number of breaks that occur on the weaker parts of the system.

In this task WSO will assess the potential for optimizing CFUD’s distribution system pressure management in order to further reduce system leakage and extend infrastructure life.

### 2.8.1 Subtask Eight-A) – Collect and Evaluate Pressure and Flow Data from all DMAs

In addition to the flow data recorded for each DMA, pressure will be recorded by pressure loggers installed at the district inlet point, the average pressure point and the critical pressure



point. The pressure data will be recorded over several months and then analyzed and evaluated for potential to improve current system pressure management.

In addition in order to assess whether the system is subject to pressure spikes and transients which are a primary cause for leaks and breaks, WSO will deploy Telog HR3 1 Hydrant Pressure Recorders to record system pressure at a sample rate of 1/4 second intervals (4 samples per second).

#### **2.8.2 Subtask Eight-B) – Design Advanced Pressure Management Schemes**

Advanced pressure management schemes will be designed for each of the DMAs based on the results of Subtask Eight-A.

#### **2.8.3 Subtask Eight-C) – Pilot Advanced Pressure Management in One DMA**

Advanced pressure management will be implemented by WSO in one pilot DMA to refine the pressure management schemes designed by WSO before expanding to the rest of the DMAs.

#### **2.8.4 Subtask Eight-D) – Full Scale Implementation of Advanced Pressure Management**

Once the advanced pressure management pilot is successfully completed WSO will implement the advanced pressure management schemes in the rest of the DMAs. The DMA leakage monitoring system will provide immediate data on the leakage reduction achieved by each of the advanced pressure management schemes allowing for further refinement of the schemes if necessary.

### **2.9 Task Nine – Calculate Economic Leakage Intervention Level for Each DMA**

Based on the size of each DMA, its infrastructure characteristics, the cost to undertake leak detection, and the rate of rise in leakage in the DMA, WSO will calculate the economic leakage intervention level for each DMA.

For each DMA there will be a leakage level where the cost to detect unreported leaks in the DMA equals the cost of the water lost due to those unreported leaks. Once the leakage level rises beyond this point CFUD starts losing money and the DMA leakage level should be reduced back to minimum levels through leak detection and repair. This economic intervention level is different from DMA to DMA.

Figure 2-4 depicts an example of the rise of leakage in a DMA over time as it's monitored through the DMAs leakage monitoring system. Once the leakage level in the DMA reaches the calculated economic intervention level the water utility sends a leak detection team to the DMA to find and fix all detectable leaks in order to reduce the leakage volume to economic optimal levels. Figure 2-4 is an example from one of the water loss control programs implemented by WSO.

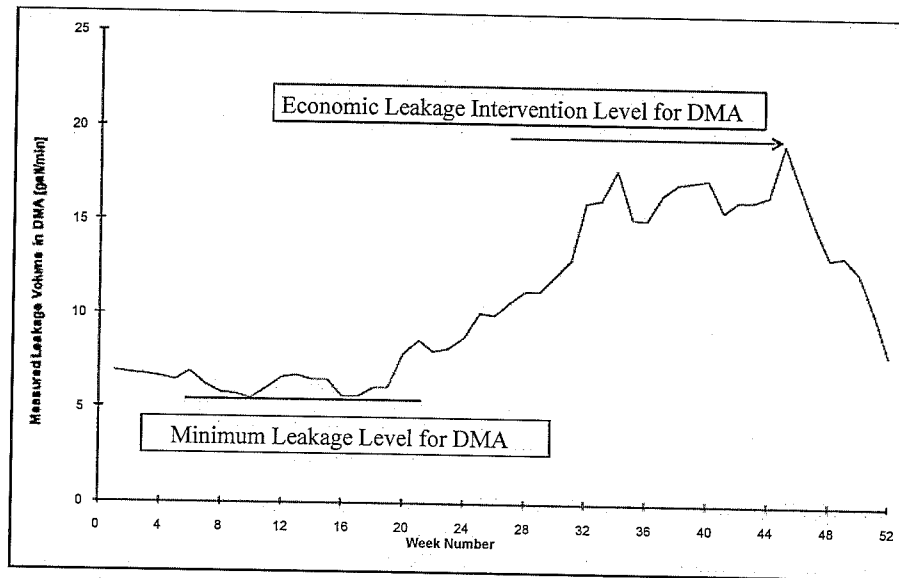


Figure 2-4 Economic Leakage Intervention Level for DMA

## 2.10 Task Ten – Training of CFUD Personnel on Water Loss Management, Data Handling and Data Management

Throughout the two year water loss control program WSO will continuously train CFUD personnel on water loss management activities, data handling and data management, and data analysis. WSO will provide CFUD with clear procedures on how to manage and analysis the data necessary for a successful water loss control policy. Extensive training will be provided on the use of the DMA data and leakage monitoring system designed and implemented by WSO.

## 2.11 Task Eleven – Project Management of Entire Water Loss Control Program

WSO will manage the entire water loss control program in conjunction with CFUD. The fact that WSO has already implemented several successful water loss control programs will guarantee an efficient and well coordinated execution of the program.

### 2.11.1 Subtask Eleven–A) Preparation of Monthly Progress Reports

Monthly interim progress reports detailing the progress to date along with monthly invoices will be prepared by WSO.

### 2.11.2 Subtask Eleven–B) Preparation of Draft and Final Report

WSO will prepare a detailed final report at the end of the water loss control program period that describes in detail all the work undertaken, the methodologies used, the findings of the Leak Detection Survey and recommended strategy for continued real loss management by CFUD. The final report will be submitted in PDF format and will document all data collected and work performed.

### **CFUD Responsibilities for Water Loss Control Program**

During most Water Loss Control Programs, WSO requests the client utility to implement necessary distribution operation tasks such as opening and closing of valves and hydrants, operating and adjusting PRV's, etc. To assure a successful implementation of this Two Year Water Loss Control Program the CFUD will need to be actively engaged in the program and provide the following assistance to WSO:

- Facilitate and assist during field work to verify integrity of pressure zones – testing the hydraulic integrity of boundary valves.
- Facilitate collection of pressure data throughout the system
- Provide system maps
- Repair of detected leaks in a timely manner
- Access to requested data
- Provide access to CFUD system infrastructure
- Adjust PRV settings
- If necessary provide tapings on mains for flow measurements using WSO's insertion flow meters

Based on experience it is recommended that CFUD selects one staff member to be the internal Water Loss Control Program manager, who is the primary contact for WSO throughout the program.

### 3 INTRODUCTION TO WATER SYSTEMS OPTIMIZATION, INC.

WSO is highly specialized in water loss management and reduction technologies including American Water Works Association (AWWA) water audits, leakage modeling, leak detection and repair, apparent loss assessment and reduction, and pressure management. WSO has proven ability in this field through all phases of the project life cycle from investigation, analysis, design, development, planning and implementation. Although technology plays an important role in what we do, at the core of our business are the people we employ to deliver the services for our clients. All our project personnel are well-trained, skilled and experienced in our specialized field, and highly motivated to provide high quality service. WSO is able to provide world class experience with an intimate knowledge of North American methodologies, technologies and regulation. The philosophy of WSO is to provide professional services using the most advanced and cost effective tools to yield a high standard of overall accuracy and reliability. We are a strong believer in using data obtained from field tests and carrying out detailed component analysis for all of our water audit work, to increase the accuracy of analysis and the quality of our service.

WSO was formed in 2002, and is now the industry leader in water loss management in North America. Since formation, the company has been successfully using the AWWA recommended water loss management and assessment methodologies. WSO has undertaken the largest water loss management projects in the United States over the past six years and was the lead firm on two key water loss related AwwaRF research studies. Both studies have now been published by AwwaRF to provide North American water utilities with guidance on their water loss management activities. The company is active within the AWWA and has employees that are established members of the AWWA Water Loss Control Committee and the International Water Association (IWA) Water Loss Task Force. WSO has also advised the Californian Urban Water Conservation Council on regulatory parameters relating to water loss management.

WSO's key personnel comprise the most recognized individuals in North America with respect to the implementation of water loss assessment, management and reduction programs. WSO's key staff consists of individuals with extensive national and international experience in developing and implementing cutting edge water loss management methodologies and technologies. WSO's key personnel not only deliver highly successful projects to clients but also contribute towards advancing the water loss management industry through continuous research work and publication of industry research reports, papers and text books. WSO is uniquely positioned to guarantee clients the most advanced water loss management methodologies and technologies.

The company has carried out the previous 5-year DMA measurement and leak detection survey service contract for Nashville Metro from November 2004 to November 2009 and has just recently been awarded the next 5-year DMA measurement and leak detection survey service contract for Nashville Metro from 2010 to 2015. This 5-year contract includes the setting up of temporary district metered areas (DMA's), flow and pressure measurement and analysis to determine leakage levels, prioritization of the DMA's for leak detection, and leak detection survey to identify unreported leaks. This is just one example of the many water loss control programs WSO has successfully implemented over the past eight years.

## 4 STAFF RESUMES

### 4.1 Stephen Preston – President - WSO

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**Project Role:** Project Director

**Years of Experience:** 25

**Office Address:** 102 Space Park South Drive, Nashville TN, 37211

**Education:** Graduateship of Royal Society of Chemistry (Pt1 with Practical) – Preston Polytechnic  
HNC Chemistry – Wigan College of Technology  
HNC Civil Engineering – Wigan College of Technology

Stephen Preston is President of WSO. He is also Managing Director of WSO's parent company, Waterframe Limited and is also Managing Director of the WSO's sister company in Papua New Guinea, Water Systems Optimization (PNG) Limited. He has 25 years experience of water distribution system design, operation, network modeling non-revenue water and leakage management. He has worked in many countries worldwide including USA, UK, US, Middle Eastern, African, Asian and Pacific region. He developed highly successful Non-Revenue Water reduction projects in Malaysia and Papua New Guinea.

Stephen has extensive experience in creating DMAs and implementing pressure management schemes. Steve has successfully implemented several system-wide DMA and pressure management schemes over the past 25 years. Stephen was involved in the original development of the Burst and Background Estimate (BABE) concept and he developed numerous water loss modeling and pressure management software suites during his career. Most recently he developed modeling software for component analysis of real losses, target setting and selection of appropriate intervention strategies against real losses.

Recent WSO contracts that Stephen has participated in include the Phoenix Water Audit of 2004, and the series of Nashville Water Audit contracts carried out in 2004, 2005, and 2006. In these contracts, Stephen carried out the detailed analysis of billing records and customer meter test data to quantify the scale of revenue losses due to meter under-registration and billing errors. In the Phoenix Water Audit contract, the billing data and customer meter test data analysis carried out by Stephen identified one particular make and model of 5/8-inch water meter that was being used by the City of Phoenix which was responsible for 64% of the total revenue loss through under-registration of consumption. These particular meters accounted for only 17% of the total meter stock in use. The revenue loss through these meters was approximately 5 times worse than the average for other meter types. In the most recent Nashville Water Audit contract, commercial end-use consumption profiles were obtained and used to calculate the revenue enhancement that would be achieved by meter right-sizing. The average annual revenue enhancement before change-out cost for the pre-selected meters was \$472 per meter for customers with currently installed 3-inch meters and \$2,854 per meter for customers with currently installed 4-inch meters.

In 2003, Stephen developed the Port Moresby Non-Revenue Water Reduction project for WSO's sister company, Water Systems Optimization (PNG) Limited. This three-year performance-based non-revenue water reduction contract was successfully completed under

Stephen's direction in June 2006, and delivered a reduction in non-revenue water in excess of 9 million gallons per day out of a starting production level of 45 million gallons per day. The annual saving to the client water company is of the order of \$2.5 million.

## 4.2 Reinhard Sturm – Vice President - WSO

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**Project Role:** Project Manager

**Years of Experience:** 11

**Principle Office Address:** 233 30<sup>th</sup> Street, San Francisco CA, 94107

**Education:** University of Natural Resources and Applied Life Science, Vienna, Austria  
M. SC. in Environmental Engineering 1998

Reinhard Sturm is Vice President of Operations –West for WSO. Reinhard has been working on Water Loss reduction projects throughout the world, including countries such as USA, Canada, Malaysia, India, Sri Lanka, Kazakhstan, Egypt, and Moldova. For the past seven years his focus was on the U.S. and since then he has been involved in some of the biggest Water Loss assessment and reduction projects in the U.S.

Reinhard was the Co-principle investigator for the AwwaRF research project #292 8 “*Leakage Management Technologies*” where he was the lead researcher and also responsible for the successful management of the project. This very prestigious research project, published in August 2007, provides North American water utilities with a detailed guidance on the most up to date and most applicable leakage management technologies such as DMA’s and advanced pressure management. Reinhard is also a co-author of the AwwaRF research report “*Evaluating Water Loss and Planning Loss Reduction Strategies*”. Reinhard is furthermore the co-author of the professional manual recently published by McGraw Hill and AWWA in June 2008 – “*Water Loss Control Manual – 2<sup>nd</sup> Edition*”. Reinhard has published more than 10 specialized papers on various topics related to water loss management over the past seven years.

Reinhard is actively involved in the International Water Association – Water Loss Task Force (WLTF) where he served two terms as technical secretary and he is also actively involved in the American Water Works Association – Water Loss Control Committee (WLCC). Four years ago Reinhard was invited by the California Urban Water Conservation Council to act as technical advisor on their revision of a best management practice for reduction of Non-Revenue Water. He has since then advised the council on how to assess and economically reduce all components of Water Loss.

Some of the Water Loss assessment and reduction projects Reinhard recently managed for clients such as the Philadelphia Water Department PWD (2003 to 2010), San Francisco Public Utilities Commission SFPUC (2005 to 2007), El Dorado Irrigation District EID (2005), City of Phoenix Water Services Department (2003 to 2005) and Southern California EDISON (2007 to 2009) all included components very similar to the tasks outlined in this proposal.

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### 4.3 Isabel Szendrey P.E. – Jr. Project Manager

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**Project Role: Jr. Project Manager****Years of Experience:****Principle Office Address:** 233 30<sup>th</sup> Street, San Francisco CA, 94107**Education:** MSE Environmental Processes Engineering, Johns Hopkins University, 2002  
BS Civil Engineering, Johns Hopkins University, 2001

Isabel is a Jr. Project Manager in WSO working on Water Loss reduction projects throughout California and other US states. Isabel has also worked in a variety of water, wastewater, and environmental projects in the US and Puerto Rico. She has experience in regional planning and project planning for water and wastewater infrastructure projects, hydraulic models for water and wastewater distribution systems, and environmental permits.

In the Water Loss field, she has worked on all aspects of the preparation of a validated standard water audit, including meter testing, field leakage measurements, flow and pressure data collection and analysis, billing data analysis, and leakage modeling. She was a main participant in the City of Folsom water audit which has led to the project presented in this proposal. As a result of the field tests of the system input meters carried out for that project, a system input meter that was not measuring the flow accurately due to improper installation was identified. In addition, through the analysis of the billing data, Isabel was able to estimate a total utility-wide consumption volume when consumption data for only 10% of the customers was available. This was a crucial step to determine a water loss volume for the City of Folsom.

Isabel has also worked on other projects related to the Water Loss field. For Southern California EDISON, she was involved in a pilot project to evaluate the nexus between water loss and energy consumption. For the Philadelphia Water Department, Isabel conducted an analysis of water consumption trends to identify any changes in the consumption pattern due to the implementation of pressure controls in a district metered area within the utility.

## 5 BUDGET AND TIMELINE

### 5.1 Budget Year One

A breakdown of costs per task and hours assigned is provided as follows:

PROJECT TASK ASSIGNMENT MATRIX AND BUDGET YEAR ONE				
Staff Designation	Project Director	Sr. Project Manager	Jr. Project Manager	Total Fee
Hourly Rate	\$180	\$165	\$135	
Tasks	Estimated hours per task	Estimated hours per task	Estimated hours per task	
Kick-off Meeting	0	8	8	\$2,360.00
Task 1 – Initial Comprehensive Leak Detection Campaign	NA	NA	NA	\$70,000.00
Task 2 – Initial Bottom-Up DMA Measurements in Zone 1 and Zone 4,5,6	40	204	108	\$54,900.00
Task 3 – Second Round of Comprehensive Leak Detection Campaign	NA	NA	NA	\$70,000.00
Task 4 – Final Bottom-Up DMA Measurements in Zone 1 and Zone 4,5,6	8	52	20	\$12,620.00
Task 5 – Convert Zone 2 and Zone 3 into Permanent DMAs	8	80	40	\$19,840.00
Task 6 – Design and Implement Data Analysis and Management system for Leakage Monitoring in all DMAs	40	120	80	\$37,400.00
Task 7 – Assess Potential for Subdividing Zone 2 into two DMAs and Subdivide if Possible	0	0	0	
Task 8 – Pressure Management	0	0	0	
Task 9 – Calculate Economic Leakage Intervention Level of Each DMA	0	0	0	
Task 10 – Training of CFUD Personnel on Water Loss Management, Data Handling and Data Management	0	40	20	\$9,200.00
Task 11 – Project Management of Entire Water Loss Control Program – Year One	76	236	152	\$72,380.00
<b>Total Time, hours</b>	<b>172</b>	<b>740</b>	<b>428</b>	
<b>Total Professional Fee</b>	<b>\$30,960.00</b>	<b>\$122,100.00</b>	<b>\$55,640.00</b>	<b>\$348,700.00</b>
<b>Reimbursable Expenses</b>				<b>\$2,100.00</b>
<b>Total Fee - Year One</b>				<b>\$350,800.00</b>



## 5.2 Budget Year Two

A breakdown of costs per task and hours assigned is provided as follows:

PROJECT TASK ASSIGNMENT MATRIX AND BUDGET YEAR TWO				
Staff Designation	Project Director	Sr. Project Manager	Jr. Project Manager	Total Fee
Hourly Rate	\$180	\$165	\$135	
Tasks	Estimated hours per task	Estimated hours per task	Estimated hours per task	
Kick-off Meeting	0	0	0	
Task 1 – Initial Comprehensive Leak Detection Campaign	0	0	0	
Task 2 – Initial Bottom-Up DMA Measurements in Zone 1 and Zone4,5,6	0	0	0	
Task 3 – Second Round of Comprehensive Leak Detection Campaign	0	0	0	
Task 4 – Final Bottom-Up DMA Measurements in Zone 1 and Zone4,5,6	0	0	0	
Task 5 – Convert Zone 2 and Zone 3 into Permanent DMAs	0	0	0	
Task 6 – Design and Implement Data Analysis and Management system for Leakage Monitoring in all DMAs	0	0	0	
Task 7 – Assess Potential for Subdividing Zone 2 into two DMAs and Subdivide if Possible	8	40	40	\$13,240.00
Task 8 – Pressure Management	48	260	200	\$77,540.00
Task 9 – Calculate Economic Leakage Intervention Level of Each DMA	16	80	16	\$18,160.00
Task 10 – Training of CFUD Personnel on Water Loss Management, Data Handling and Data Management	0	40	20	\$9,200.00
Task 11 – Project Management of Entire Water Loss Control Program – Year Two – Including Draft and Final Report	104	224	188	\$80,120.00
<b>Total Time, hours</b>	<b>176</b>	<b>644</b>	<b>464</b>	
<b>Total Professional Fee</b>	<b>\$31,680.00</b>	<b>\$106,260.00</b>	<b>\$60,320.00</b>	<b>\$198,260.00</b>
<b>Reimbursable Expenses</b>				<b>\$900.00</b>
<b>Total Fee - Year Two</b>				<b>\$199,160.00</b>

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**5.3 Total Budget for Two Year Water Loss Control Program**

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The cost for the proposed Two Year Water Loss control program is \$546,960.000 for professional fees and \$3,000 for reimbursable expenses resulting in a total project cost of \$549,960.00.

With the Two Year Water Loss Control Program estimated to achieve savings in the range of 1,000MG/Year, with monetary savings of about \$1.4M/Year, the cost for implementing this program will have a very short payback period.

## 5.4 Timeline

Timetable for Water Loss Control Program		Year One												Year Two											
		Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	Month 22	Month 23	Month 24
Project Kick Off																									
1. Initial Comprehensive Leak Detection Campaign (240miles)																									
2. Initial Bottom-Up DMA Measurement in Zone 1 and Zone 4,5,6																									
A) Field Tests to Verify Zone Integrity of Zones 1 and 4,5,6																									
B) Convert Zone 1 and 4,5,7 into Permanent DMAs																									
C) Initial Leakage Level Measurement in DMA Zones 1 and 4,5,6																									
D) Comparison of Initial DMA Leakage Levels Against Water Audit Results																									
E) Quantify Savings Achieved Through First Round of Leak Detection																									
F) Design and Pilot Leakage Monitoring System for DMA Zones 1 and 4,5,6																									
3. Second Round of Comprehensive Leak Detection Campaign (240miles)																									
4. Final Bottom-Up DMA Measurement in Zones 1 and 4,5,6																									
A) Final Leakage Level Measurement in DMA Zones 1 and Zones 4,5,6																									
B) Calculate Savings Achieved Through Second Round of Leak Detection																									
C) Calculate Savings Achieved Through Second Round of Leak Detection																									
5. Convert Zone 2 and 3 into Permanent DMAs																									
6. Design Data Analysis and Management System for Leakage Monitoring in All DMAs																									
7. Assess Potential for Subdividing Zone 2 into two DMAs and Subdivide if Possible																									
8. Pressure Management																									
A) Collect and Then Evaluate Pressure and Flow Data From All DMAs																									
B) Design Advanced Pressure Management Schemes																									
C) Pilot Advanced Pressure Management in One DMA																									
D) Full Scale Implementation of Advanced Pressure Management																									
9. Calculate Economic Leakage Intervention Levels of Each DMA																									
10. Training of CoF Personnel on Water Loss Management, Data Handling and Data Management																									
11. Project Management of Entire Water Loss Control Program																									
Preparation of Monthly Progress Reports																									
Preparation of Draft and Final Report																									

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## 5.5 Assigned Personnel

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**Project Director: Stephen Preston** will be assigned as the Project Director for this project. In his position he will be responsible for quality control and technical oversight in addition to providing technical input to the program.

**Sr. Project Manager: Reinhard Sturm** will be the Project Manager for this project. In this position he will be responsible to track the progress of the project and the individual tasks, be responsible for collection of data and necessary information, setting up and coordinating meetings and field work, data analysis and preparation and maintenance of records of meetings (including outcomes and tracking follow up items), prepare monthly progress reports for invoicing, prepare draft final and final report (with relevant input from Stephen Preston).

**Jr. Project Manager: Isabel Szendrey P.E.** will be the Jr. Project Manager for this project. In her role she will be responsible for data collection and management and coordination of field work with CFUD.

## **Appendix A**

### **Proposed Equipment Information for Leak Detection and Flow and Pressure Measurements**

# **TAB 7**

DATE: August 14, 2008

TO: Mayor and City Council Members

FROM: Utilities Department

SUBJECT: **RESOLUTION NO. 8364 - A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT WITH MARQUES PIPELINES, INC. FOR CONSTRUCTION OF THE WATER METER INSTALLATION PROJECT AND APPROPRIATION OF FUNDS**

**BACKGROUND / ISSUE**

By State law and through participation in the Water Forum, the City is required to have water meters installed on all residential water services within the City's water service area by January 2013, and must begin billing customers in these areas based on consumptive rates by March 2013.

For the Ashland Service Area, located north of the American River, installation of meters and billing customers based on metered water rates was required earlier, by December 31, 2005, under the City's water contract with the U.S. Bureau of Reclamation through the San Juan Water District. The City completed the meter installation and began metered-rate billing for the Ashland Service Area in January 2006.

In the remaining service areas of the City, there are still approximately 17,000 residences that will need to be converted to a metered billing rate by the March 2013 deadline. Of these, approximately 5,400 homes will require new meter installations in various locations throughout the City. Attachment 2 illustrates the order of meter installation by zone. The contractor will begin in Zone 1 and finish in Zone 12.

To facilitate compliance with the law and to help ensure a smooth and effective implementation of a City-wide metering program, the City adopted a comprehensive Water Meter Implementation Plan (WMIP) in August 2007. The WMIP was a document that was generated with input from the Meter Advisory Group (MAG) and the Utility Commission. The MAG was a community group comprised of nine at-large members to provide input specifically related to water meter implementation. The WMIP recommended that an outside contractor install the approximately 5,400 water meters.

This resolution authorizes the City Manager to execute an agreement with Marques Pipelines, Inc. for construction of the Water Meter Installation Project.

## **POLICY / RULE**

Per State Law, (Water Code 526), the City is required to install water meters on or before January 1, 2013 and bill as measured by a water meter on and after March 1, 2013.

Folsom Municipal Code Section 2.36.120 requires that contracts in excess of \$41,750 be awarded by the City Council.

## **ANALYSIS**

The City completed contract documents for this project and publicly advertised for bids on July 11, 2008 and July 14, 2008. In addition, the City provided these documents to several area builders' exchanges. The engineer's estimate for the project is \$5,000,000. The Utilities Department received the following bids on August 14, 2008, for construction of the Water Meter Installation Project:

<b>Contractor</b>	<b>Bid Amount</b>
Marques Pipelines, Inc.	\$3,406,175
Syblon Reid Construction	\$3,786,000
Preston Pipelines, Inc.	\$3,980,050
GM Construction & Developers, Inc.	\$3,994,675
Teichert Construction	\$4,295,700
West Valley Construction	\$4,445,175
Navajo Pipelines, Inc.	\$4,829,925
Clayborn Contracting Group, Inc.	\$4,853,793
Doug Veerkamp General Engineering, Inc.	\$4,899,450
JRS General Engineering	\$5,239,000
McGuire & Hester	\$5,697,697

## **FINANCIAL IMPACT**

There is approximately \$2.9 million budgeted for meter installation in the FY 2008/09 budget in the Water Impact Fee Fund (Fund 456). Due to the acceleration of the meter installation project, additional funds will need to be appropriated for FY 2008/09 in the amount of \$846,792, which will fund the unbudgeted amount of the project plus the 10% contingency.

The City was recently awarded a California Department of Water Resources Drought Assistance Grant for an amount between \$200,000 and \$250,000. The City's grant is for the acceleration of water meter installations for water conservation purposes. The grant will offset a portion of the project costs and will be brought before the City Council at a later date.

There is sufficient fund balance in Water Operating Fund (Fund 520), Water Capital Fund (Fund 521) and Water Impact Fee Fund (Fund 456) for the entire contract amount of \$3,406,175, plus the 10% contingency.



## **ENVIRONMENTAL REVIEW**

This project is a rehabilitation project of existing infrastructure; and therefore, is categorically exempt from environmental review under the California Environmental Quality Act as noted in Title 14 - California Code of Regulations, Chapter 3 - Guidelines for Implementation of the California Environmental Quality Act, Article 19 - Categorical Exemptions, Section 15302 - Replacement or Reconstruction.

## **ATTACHMENT**

1. Resolution No. 8364 - A Resolution Authorizing the City Manager to Execute an Agreement with Marques Pipelines, Inc. for Construction of the Water Meter Installation Project and Appropriation of Funds
2. Water Meter Zone Map

## **RECOMMENDATION/ CITY COUNCIL ACTION**

The Utilities Department recommends that the City Council pass and adopt Resolution No. 8364 - A Resolution Authorizing the City Manager to Execute an Agreement with Marques Pipelines, Inc. for Construction of the Water Meter Installation Project and Appropriation of Funds.

Submitted,

Kenneth V. Payne, UTILITIES DIRECTOR

**RESOLUTION NO. 8364**

**A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT WITH MARQUES PIPELINES, INC. FOR CONSTRUCTION OF THE WATER METER INSTALLATION PROJECT AND APPROPRIATION OF FUNDS**

**WHEREAS**, by State law, Water Code 526 and through participation in the Water Forum, the City is required to install water meters on all homes within the City's service area and begin billing for water usage based on metered rates by March 2013; and

**WHEREAS**, to meet this requirement and ensure a smooth and effective implementation of a City-wide metering program, the City adopted a Water Meter Implementation Plan (WMIP) in August 2007, which proposed using an outside contractor to install the approximate 5,400 water meters; and

**WHEREAS**, Marques Pipelines, Inc. was the lowest responsible, responsive bidder; and

**WHEREAS**, Contract documents were prepared for this work and publicly advertised for bids on July 11 and July 14, 2008; and

**WHEREAS**, on August 14, 2008, the Utilities Department received bids for construction of the Water Meter Installation Project; and

**WHEREAS**, the agreement will be in a form acceptable to the City Attorney; and

**WHEREAS**, funds are available in the Water Operating Fund (Fund 520), Water Capital Fund (Fund 521), and the Water Impact Fee Fund (Fund 456):

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Folsom authorizes:

- (1) The City Manager to execute an agreement with Marques Pipelines, Inc. for construction of the Water Meter Installation Project in an amount not to exceed \$3,406,175.00; and
- (2) The Finance Director to increase fund balance revenue in the Water Capital Fund (Fund 521) by \$846,792; and
- (3) The Finance Director to increase appropriations in the Water Capital Fund (Fund 521) by \$846,792.

**PASSED AND ADOPTED** on this 26<sup>th</sup> day of August, 2008, by the following roll-call vote:

**AYES:** Council Member(s): Miklos, Morin, Starsky, Howell, King


**NOES:** Council Member(s): None

**ABSTAIN:** Council Member(s): None

**ABSENT:** Council Member(s): None

  
Eric S. King, MAYOR

**ATTEST:**

  
Christa Schmidt, CITY CLERK

Resolution No. 8364

Page 1 of 1

# **TAB 8**

DATE: October 29, 2009

TO: Mayor and City Council Members

FROM: Utilities Department

SUBJECT: **RESOLUTION NO. 8566 - A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AMENDMENT NO. 1 TO THE AGREEMENT (CONTRACT NO. 173-21-08-047) WITH BCB CONSTRUCTION SERVICES FOR CONSTRUCTION MANAGEMENT SERVICES FOR THE WATER METER INSTALLATION PROJECT AND APPROPRIATION OF FUNDS**

**BACKGROUND / ISSUE**

By State law and through participation in the Water Forum, the City is required to have water meters installed on all residential water services within the City's water service area by January 2013, and must begin billing customers in these areas based on consumptive rates by March 2013. To facilitate compliance with the law and to help ensure a smooth and effective implementation of a City-wide metering program, the City adopted a comprehensive Water Meter Implementation Plan (WMIP) in August 2007.

Specifically, the WMIP recommended that an outside contractor install the approximately 5,400 water meters. Since the meter installation encompasses a specific timeframe, the WMIP recommended outside resources be used to avoid long-term cost obligations for a limited term project. Additionally, because of limited qualified professional staff available for the large-scale meter implementation, the City proceeded to use outside construction management services to focus on the WMIP.

The original scope of services for construction management includes one full-time inspector, one part-time inspector and administrative support for the installation of the water meters. The scope covered the inspection of the meter installation, pre- and post-construction photographs, schedule review, change order review, submittal review, weekly meetings and minutes, progress billing review, meter difficulty identification and verification, and public coordination at time of installation.

During construction, City staff noticed an increase in construction coordination and warranty related work for the water meter installation. Warranty related work, which extends throughout the project period due to small phases of construction in neighborhood sectors, and meter data collection/management were not included in the original scope of work.

To avoid duplication of work and eliminate the need for a separate contractor to re-visit and collect meter data, staff is seeking to use the construction manager, who is already on-site and able to quickly retrieve meter data, to provide an additional effort related to coordinating the meter data management. Additionally, to reduce change orders with the contractor, the City has elected to self-perform the more difficult meter installation sites. Subsequently, the construction manager is incurring impacts to their original scope of work and budget to coordinate construction activities between the contractor and City crews. Additional effort is required for coordination with the City's Utility Maintenance and Meter

Divisions for service line leaks and locations. Initially, BCB Construction Services tried to cover all of the work with one full-time and one part-time inspector, but found that the coordination of the original construction activities and the additional services for the warranty efforts, data management, and coordination with the City required additional construction management and inspection time that is beyond the original resource demands.

This Resolution will authorize the City Manager to Execute Amendment No. 1 (Contract No. 173-21-08-047) to the Agreement with BCB Construction Services for Construction Management Services for the Water Meter Installation Project. The additional Construction Management Services are for a not to exceed fee of \$175,000, and increases the total contract amount to \$870,000.

## **POLICY / RULE**

Per State Law, (Water Code 526), the City is required to install water meters on or before January 1, 2013, and bill as measured by a water meter on and after March 1, 2013.

Folsom Municipal Code Section 2.36.120 requires that contracts in excess of \$41,750 be awarded by the City Council.

## **ANALYSIS**

Due to the magnitude of the project, on September 26<sup>th</sup>, 2008, the City Council approved a resolution to utilize an outside construction management firm to perform the necessary construction management and inspection services for this relatively short timeline project. The original scope for the construction management of the Water Meter Installation Project required approximately 5,000 person-hours of highly technical and specialized services during the eighteen-month project; including one full-time inspector, one part-time inspector and administrative support for the installation inspection, documentation management, and public coordination during installation.

Currently, the Utilities Department has four professional staff that are experienced and qualified for this type of project. However, because of the existing workload and assignments, City staff is not available to be assigned full-time to this project without jeopardizing other project assignments such as the Fixed Network Installation, Lake Forest Sewer Lift Station, EID PRV Intertie, Basin 6 Sewer Diversion, regional planning, rate studies and budget planning, other Capital Improvement Projects (CIPs) for water and wastewater and overall operational and department management.

Accordingly, staff is using contract services to perform these construction management and inspection services. It should be noted that existing City crews are currently being used for the more difficult meter installations and retrofits throughout the City as well as repairs on existing service lines and meters.

During construction, City staff identified several factors that required additional construction management services that were not proposed in the original scope of services. Additional time was required by the construction management team to coordinate the excavation and installation of the water meters and warranty issues for completed work. Provided below are factors that require additional services:

- Meter Data Management - Additional time to track and validate the new meter identification data to ensure a smooth transition into the City's data management and billing systems. This additional coordination eliminated future costs associated with performing separate site surveys to collect and incorporate new meter data into existing data management systems.
- City Crews-Contractor Schedule Coordination - Additional time to coordinate with the City's Maintenance and Meter Divisions when the contractor discovered service lines leaks. This

coordination helped quickly identify previously undiscovered leaks and reduced staff hours associated with coordinating with the contractor as leaks were discovered.

- Customer Construction Coordination - Increased coordination with the contractor and the City's customer's during the excavation, installation, and finish work related to the meter installation.
- Warranty Coordination - Increased coordination with the contractor and homeowners relating to warranty matters after the meter installation was complete and operational (this often occurs several days to several weeks after the installation of the water meter).

The remaining workload required for this project is approximately 1,300 person-hours over the next 3-4 months. The additional Construction Management and Inspection Services are for a not to exceed fee of \$175,000, and increases the total contract amount to \$870,000

### **FINANCIAL IMPACT**

Additional funds will need to be appropriated for the FY 09/10 budget in the amount of \$175,000. There is sufficient fund balance in the Water Capital Fund (Fund 521).

### **ENVIRONMENTAL REVIEW**

This project is a rehabilitation project of existing infrastructure; and therefore, is categorically exempt from environmental review under the California Environmental Quality Act as noted in Title 14 - California Code of Regulations, Chapter 3 - Guidelines for Implementation of the California Environmental Quality Act, Article 19 - Categorical Exemptions, Section 15302 - Replacement or Reconstruction.

### **ATTACHMENT**

Resolution No. 8566 - A Resolution Authorizing the City Manager to Execute Amendment No. 1 (Contract No. 173-21-08-047) to the Agreement with BCB Construction Services for Construction Management Services for the Water Meter Installation Project and Appropriation of Funds

### **RECOMMENDATION/ CITY COUNCIL ACTION**

The Utilities Department recommends that the City Council pass and adopt Resolution No. 8566 - A Resolution Authorizing the City Manager to Execute to Execute Amendment No. 1 (Contract No. 173-21-08-047) to the Agreement with BCB Construction Services for Construction Management Services for the Water Meter Installation Project and Appropriation of Funds.

Submitted,

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Kenneth V. Payne, UTILITIES DIRECTOR

**RESOLUTION NO. 8566**

**A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AMENDMENT NO. 1  
(CONTRACT NO. 173-21-08-047) TO THE AGREEMENT WITH BCB CONSTRUCTION  
SERVICES FOR CONSTRUCTION MANAGEMENT SERVICES FOR THE WATER METER  
INSTALLATION PROJECT AND APPROPRIATION OF FUNDS**

**WHEREAS**, by State law, Water Code 526 and through participation in the Water Forum, the City is required to install water meters on all homes within the City's service area and begin charging for water usage based on metered rates by March 2013; and

**WHEREAS**, to meet this requirement and ensure a smooth and effective implementation of a City-wide metering program, the City adopted a Water Meter Implementation Plan (WMIP) in August 2007, which proposed using an outside contractor to install the approximate 5,400 water meters; and

**WHEREAS**, this project required a focused effort within a short time frame with qualified resources, City staff concluded that utilizing outside construction management and inspection services is the most efficient solution; and

**WHEREAS**, additional time is required to provide additional services for site-specific construction coordination with homeowners and the contractor and associated on-going warranty coordination during the water meter installation; and

**WHEREAS**, additional time is required to coordinate with the City's Maintenance Divisions related to leak repair and to help with the data management to ensure a smooth transition into the City's billing systems; and

**WHEREAS**, BCB Construction Services by reason of their past experience and abilities for performing these types of services, is qualified to perform the required construction management services; and


**WHEREAS**, the agreement will be in a form acceptable to the City Attorney; and

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Folsom authorizes:

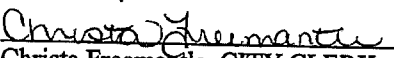
- (1) The City Manager to Execute Amendment No. 1 (Contract No. 173-21-08-047) to the Agreement with BCB Construction Services for Construction Management Services for the Water Meter Installation Project in an amount not to exceed \$175,000 for a total contract amount of \$870,000; and
- (2) The Finance Director to increase appropriations in transfers in the Water Capital Fee Fund (Fund 521) by \$175,000.

**PASSED AND ADOPTED** this 10<sup>th</sup> day of November, 2009 by the following roll-call vote:

<b>AYES:</b>	Council Member(s):	Morin, Sheldon, Starsky, Howell, Miklos
<b>NOES:</b>	Council Member(s):	None
<b>ABSENT:</b>	Council Member(s):	None
<b>ABSTAIN:</b>	Council Member(s):	None

  
Stephen E. Miklos, MAYOR

**ATTEST:**

  
Christa Freemantle, CITY CLERK

Resolution No. 8566

Page 1 of 1

## **TAB 9**



DATE: October 1, 2009

TO: Mayor and City Council Members

FROM: Utilities Department

SUBJECT: **RESOLUTION NO. 8554 - A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AMENDMENT NO. 1 TO THE AGREEMENT (CONTRACT NO. 172-21-09-005) WITH DATAMATIC, LTD. FOR FIXED NETWORK IMPLEMENTATION AND DATA MANAGEMENT SERVICES FOR THE WATER METER IMPLEMENTATION PROJECT AND APPROPRIATION OF FUNDS**

### **BACKGROUND / ISSUE**

By State law and through participation in the Water Forum, the City is required to have water meters installed on all residential water services within the City's water service area by January 2013, and must begin billing all City water customers based on consumptive rates by March 2013. To facilitate compliance with the law and to help ensure a smooth and effective implementation of a City-wide metering program, the City adopted a comprehensive Water Meter Implementation Plan (WMIP) in August 2007.

In preparing the WMIP, staff analyzed the life cycle cost for various meter reading options, including touch read (walk-by), radio read (drive-by), and fixed network. The life cycle cost analysis revealed that the fixed network system provides the best long term cost advantages. Additionally, the fixed network reading technology maximizes the potential for the City to save on future meter reading costs, whether it is reduced staffing or outside contracts.

Additionally, the fixed network system provides hourly meter reading data, rather than monthly reads with the older more traditional methods. This additional data is crucial for water supply and demand management purposes, such as conducting system water surveys, leak detection and water conservation analyses.

The following additional advantages have been identified for fixed network meter reading systems:

- Lower life cycle cost
- No long-term financial liabilities from hiring permanent City employees
- Lower cost per read
- Lower set-up costs for new accounts and for billing corrections
- More streamlined procedures to manage the delinquency program
- Fixed network is "data-rich" technology

- Enhanced data and information for water conservation strategies
- Leak and water loss data available 24 / 7

The WMIP recommended a multiple phase approach for converting the City's system to a fixed network system. The phases include an initial "test" phase, which determined transmitter locations necessary to get the system operating prior to implementation, a rollout phase for the 5,500 new meter retrofits, and a 10-15 year phased conversion of the existing older touch-read meters. Based on the speed and implementation of the first two phases of the fixed network system, the City proposes to speed up the conversion of the older touch read meters to the fixed network by early next year. Depending upon the water supply conditions, if a fourth consecutive dry-year occurs, the City Council can decide, at a later time, to accelerate implementation of the metered program.

The original contract was to install the backbone meter reading infrastructure and approximately 6,000 meter transmission units (MTU's). This resolution is an amendment to the original contract that allows the City to proceed with Datamatic, LTD with phase three of the fixed network implementation; providing fixed network implementation and data management services for the phased conversion of the older touch-read meters.

### **POLICY / RULE**

Per State Law, (Water Code 526), the City is required to install water meters on or before January 1, 2013, and bill as measured by a water meter on and after March 1, 2013.

Folsom Municipal Code Section 2.36.120 requires that contracts in excess of \$41,750 be awarded by the City Council.

### **ANALYSIS**

The City of Folsom is implementing its Water Meter Implementation Plan (WMIP) adopted by the City Council in August of 2007. The WMIP calls for the City to be completely metered and billing on a metered rate by 2012. Additionally, the City is preparing for the potential of a fourth consecutive dry-year and the need for increasing water conservation efforts will be helped by being ready to be fully metered by summer 2010.

The installation of a fixed network system is critical for the implementation of both metered rates and drought preparedness. The City is executing a three phase approach to this project:

- Phase One – Phase one work consists of the supply and installation of a complete fixed network system capable of reading the entire City network of water meters at buildout, approximately 22,000 water meters, as well as 500 meter transmitters in various locations throughout the City. This phase is being successfully completed in order to validate the system coverage, capability and accuracy prior to the rollout of a larger portion of the City's program.
- Phase Two – Phase two work consists of the supply and installation of 5,500 meter transmission units (MTU's) on locations that are slated for meter retrofit within the next year. This phase is also being successfully completed and will result in all of

the City's newly installed water meters being ready for fixed network reading in preparation for implementation of residential metered rates.

- Phase Three – Phase three work will consist of the supply of approximately 14,000 MTU's, converting the touch reads to fixed network. The completion of this phase will result in all of the City's new and older water meters being in the fixed network reading system and ready for implementation of residential metered rates.

The Utilities Department issued a Request for Proposals (RFP) to the fixed network companies for fixed network implementation and data management throughout the City's conversion to a complete fixed network system. The City elected to select a company through the RFP process because each fixed network system is different and uses varying technologies and function. The City would not have been able to specify a system without excluding all but one fixed network system. The RFP process allowed the City to list the general requirements and allowed the fixed network companies propose on meeting the City's requirements. The City formed a Proposal Review Committee comprised of staff from the Utilities, Finance and Information Systems Departments for review of the proposals and interviews.

The City received five proposals, and after proposal reviews, staff interviewed four of the fixed network companies. The City has selected Datamatic, LTD. to provide fixed network implementation and data management services for this project. The original contract was to complete Phase 1 and Phase 2 of the fixed network plan from the WMIP and was for \$1,100,000. This resolution is an amendment to the original contract that allows the City to proceed with Datamatic, LTD with Phase 3 of the fixed network implementation, installing approximately 14,000 MTUs converting the entire City to fixed network.

Staff recommends that the City Council authorize the City Manager to execute amendment #1 to the agreement with Datamatic, LTD., increasing the contract by appropriating an additional \$2,200,000, for a total not-to-exceed fee of \$3,300,000.

### **FINANCIAL IMPACT**

Due to the acceleration of the fixed network installation project, additional funds will need to be appropriated for FY 2009/10 in the amount of \$2,200,000. There is sufficient funding available in the Water Impact Fee Fund (Fund 456) for the contract amendment amount of \$2,200,000.

### **ENVIRONMENTAL REVIEW**

This work consists of basic data collection and component installation that does not result in a serious or major disturbance to an environmental resource, and is categorically exempt from environmental review under the California Environmental Quality Act as noted in Title 14 - California Code of Regulations, Chapter 3 - Guidelines for Implementation of the California Environmental Quality Act, Article 19 - Categorical Exemptions, Section 15306 – Information Collection.

## **ATTACHMENT**

Resolution No. 8554 - A Resolution Authorizing the City Manager to Execute Amendment No.1 to the Agreement (Contract No. 172-21-09-005) with Datamatic, LTD. for Fixed Network Implementation and Data Management Services for the Water Meter Implementation Project and Appropriation of Funds

## **RECOMMENDATION/ CITY COUNCIL ACTION**

The Utilities Department recommends that the City Council pass and adopt Resolution No. 8554 - A Resolution Authorizing the City Manager to Execute Amendment No.1 to the Agreement (Contract No. 172-21-09-005) with Datamatic, LTD. for Fixed Network Implementation and Data Management Services for the Water Meter Implementation Project and Appropriation of Funds.

Submitted,

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Kenneth V. Payne, UTILITIES DIRECTOR

**RESOLUTION NO. 8554**

**A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AMENDMENT NO. 1 TO THE AGREEMENT (CONTRACT NO. 172-21-09-005) WITH DATAMATIC, LTD. FOR FIXED NETWORK IMPLEMENTATION AND DATA MANAGEMENT SERVICES FOR THE WATER METER IMPLEMENTATION PROJECT AND APPROPRIATION OF FUNDS**

**WHEREAS**, by State law, Water Code 526, the City is required to install water meters on all homes within the City's service area and begin billing for water usage based on metered rates by March 2013; and

**WHEREAS**, to meet this requirement and ensure a smooth and effective implementation of a City-wide metering program, the City adopted a Water Meter Implementation Plan (WMIP) in August 2007, which accommodated the complete metering of the system by 2012; and

**WHEREAS**, recent dry winters have resulted in drought conditions that have impacted the City's water supply and have heightened the need for water conservation; and

**WHEREAS**, the implementation of a fixed network system will provide the data necessary to efficiently read and maintain the City's water meters, as well as, provide data for water conservation and leak detection; and

**WHEREAS**, the proposal submitted by Datamatic, LTD. was determined to be the most preferable to the City, taking into consideration the evaluation factors set forth in the request for proposals, as well as price; and

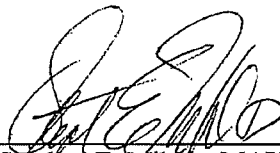
**WHEREAS**, the agreement will be in a form acceptable to the City Attorney:

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Folsom authorizes:

- (1) The City Manager to execute amendment No. 1 to agreement with Datamatic, LTD. for meter fixed network implementation and data management services for the Water Meter Implementation Project for \$2,200,000 for a total contract amount not to exceed \$3,300,000; and
- (2) The Finance Director to increase fund balance revenue in the Water Impact Fee Fund (Fund 456) by \$2,200,000; and
- (3) The Finance Director to increase appropriations in transfers in the Water Impact Fee Fund (Fund 456) by \$2,200,000.
- (4) The Finance Director to increase transfer revenue in the Water Operating Fund (Fund 520) by \$2,200,000; and
- (5) The Finance Director to increase appropriations in the Water Operating Fund (Fund 520) by \$2,200,000.

**PASSED AND ADOPTED** on this 13<sup>th</sup> day of October 2009, by the following roll-call vote:

**AYES:** Council Member(s): Starsky, Howell, Morin, Sheldon, Miklos  
**NOES:** Council Member(s): None  
**ABSENT:** Council Member(s): None  
**ABSTAIN:** Council Member(s): None

  
Stephen E. Miklos, MAYOR

**ATTEST:**

  
Christa Schmidt, CITY CLERK

# **TAB 10**

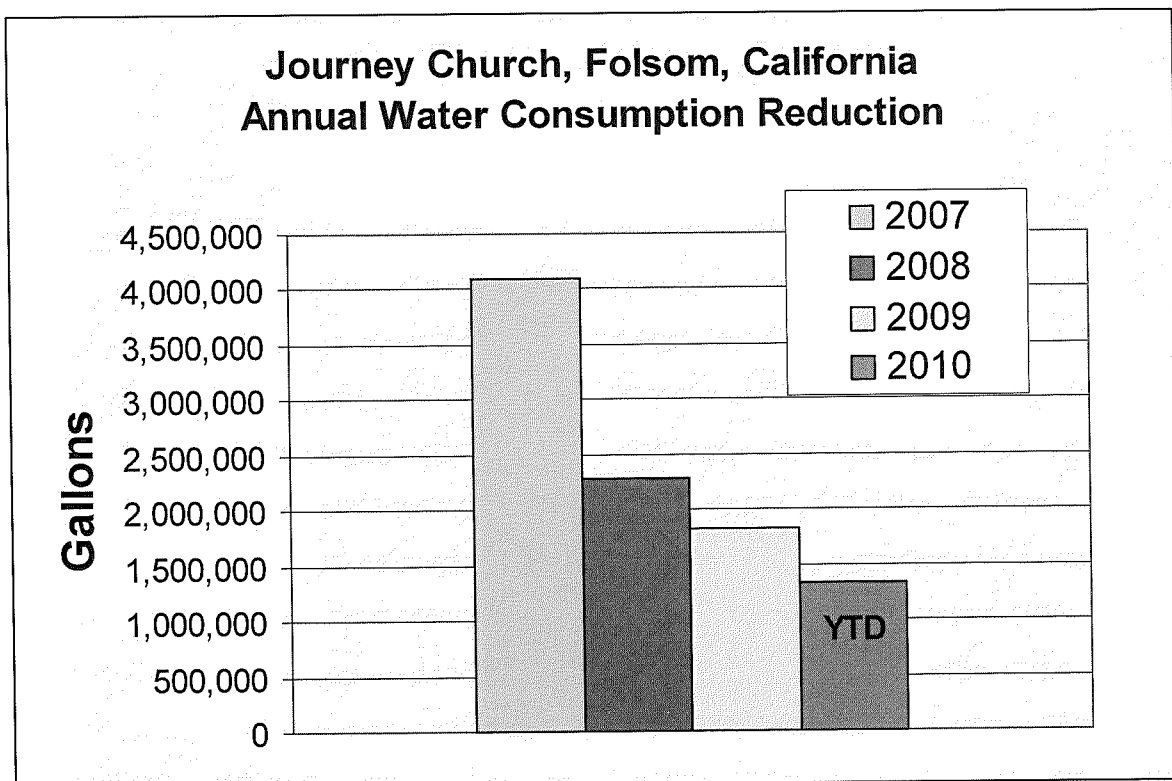
# Irrigation Efficiency Examples

## Journey Church

In August of 2007 City of Folsom Water Management Program staff performed an Irrigation audit for Journey Church. The Church campus is approximately 4.08 acres total with 2.77 acres landscaped area. The audit pointed out numerous problems and suggested several improvements to the irrigation system.

The suggested improvements included converting the shrub and groundcover beds to low volume drip irrigation, standardizing sprinkler heads with matched precipitation nozzles, and installing a “smart” weather based irrigation controller. In December the church completed the upgrade implementing many of the suggestions. The result was a significant reduction in the amount of water used.

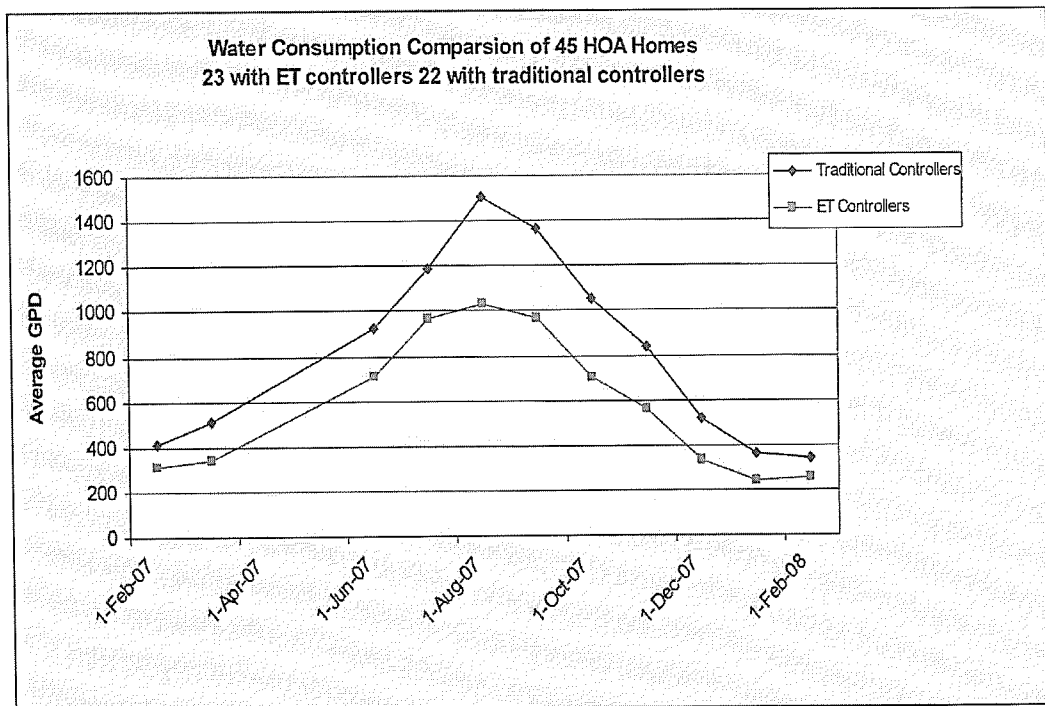
As the chart below illustrates the water use has steadily decreased. 2007 - 4,090,064 gallons, 2008 - 2,293,368, 2009 – 1,820,632, and 2010 is on track to be slightly below 2009. Water use decreased 45% from 2009 to 2007.



## Parkway Home Owners Association

From February 2007 to February 2008 a study was conducted on 45 homes in the Parkway Home Owners Association to determine effectiveness of “smart” weather based irrigation controllers (WBIC). A City of Folsom rebate program was used to install satellite based WBIC units on 23 homes. Water usage was tracked for one year and compared to 22 homes with similar size lots and landscapes. The results showed an average water use reduction of 29% at the homes with WBIC units.

Avg. Household - GPD	Feb-07	Mar-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08
Standard Controllers	411	512	924	1186	1509	1366	1051	839	521	361	340
ET Controllers	312	339	711	964	1031	969	706	562	331	241	254
Reduction %	24%	34%	23%	19%	32%	29%	33%	33%	36%	33%	25%
Avg. Reduction %	29%										





## Regional Water Authority Water Wise Garden Makeover Contest

In 2007 the Regional Water Authority conducted a contest to provide a complete landscape makeover of a residential front yard. The winner was located in the Briggs Ranch neighborhood of Folsom, California. The makeover included the removal of all turf, installation of a “smart” weather based irrigation controller, low volume drip irrigation, permeable hardscape, and low water use plant material. After completion water use was tracked and compared to a neighboring home with similar size lot and a traditional suburban landscape featuring large turf areas. The results from September 2007 through July 2008 showed the traditional home used 257,806 gallons while the makeover home used 90,785 gallons, 65% less water.

